

UNIVERSITY OF HAWAII LIBRARY  
URBAN NEIGHBORHOODS AND ENVIRONMENTAL MANAGEMENT:  
CASE STUDIES FROM AMBON, EASTERN INDONESIA

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE  
UNIVERSITY OF HAWAII I IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

IN

GEOGRAPHY

DECEMBER 2003

By

Alyssa Miller

Dissertation Committee:

Jon D. Goss, Chairperson  
Mary McDonald  
Brian Murton  
Krisnawati Suryananta  
Mike Douglass

## ACKNOWLEDGEMENTS

This study would never have come to exist without the academic support of the East West Center, Honolulu, which provided grants for study at the University of Hawaii. In particular, thanks are due to June Kuramoto of the Environment and Policy Institute for invaluable assistance and encouragement in the early stages of the research. I owe many thanks as well to Professor James Collins and the University of Hawaii Department of Indo-Pacific Languages for providing multiple opportunities to travel, live and study in Indonesia between 1990 and 1996. The field work for this dissertation was made possible by a 1997 research grant from the American Association of University Women. Additional financial support for travel and study was provided by the University of Hawaii Office of International Affairs, and the University of Hawaii Center for Southeast Asian Studies.

Numerous other individuals lent a helping hand along the way. I am deeply indebted to Professors Jon Goss, Mike Douglass, Mary McDonald, Brian Murton and Krisna Suryananta, my committee, for their ideas, advice and support during my tenure at the University of Hawaii. I also owe much to those who read and commented upon chapters. Thanks particularly to Tom Stevens and Joyce Libby who contributed greatly the development of the manuscript.

In Indonesia, many government officials offered their time and insights as I put together this study, and their cooperation and help is greatly appreciated. Thanks go to

Drs. Jules Pattiselano of Pattimura University, who provided me with an affiliation with the Indonesian National Academy of Sciences. In Ambon city, of particular assistance were Ali Masuku, the Lurah of Waihaong; Anwar Kotahatuhaha and Robert Akuywen of the Maluku Regional Planning Office; Jon Soplanit, Head of Planning, City of Ambon; Ismael Resusun of Batu Merah; Tilly Soukotta of the Maluku Regional Department of Tourism and Sinda Titaley of the Maluku Regional Mining Agency.

To Bishop Sol and Sister Tarsisia of the Rumphius Library, Mark Taber and staff at the Summer Institute of Linguistics, and the staff at LIPI-Ambon research library I extend my gratitude for providing access to a wealth of archival materials which helped me piece together the environmental, economic and cultural histories of Ambon. Many thanks also to my research assistants Joice Siahaya, and Atha Paly – my friends, companions, and cultural informants – for all their hard work and patience.

Last, but definitely not least, my greatest debt is to the city dwellers of Ambon: *the respondents and informants* who contributed untold hours to this study and in a very real sense are its true owners. In spite of economic crisis, and at the peril of neglecting their own welfare, countless people invited me, a total stranger, into their homes, fed me, provided me with information and stories, and otherwise included me in their lives. To the residents of Waihaong and Batu Merah I extend my heartfelt thanks, best wishes, and aloha.

## **ABSTRACT**

This work addresses the subject area of global urbanization and its linked environmental and social consequences, a relatively recent focus within the larger geographic tradition of investigating interrelationships between people and their environments. The research site is a rapidly urbanizing market center on a small tropical island of Indonesia, where conditions evoke particular concerns for not only human survival but also for related issues of coastal management, marine biodiversity and the sustainability of island urbanization. Recent urban growth has brought severe environmental deterioration to the city of Ambon and its surrounds, while local government remains unable to keep up with the infrastructure and service needs of its predominantly low income population. Taking its impetus from political ecology and employing auxiliary concepts on practice from theorist Pierre Bourdieu and from network theory, this work enfolds political-economic and social analyses of urbanization processes within an investigation of local environmental problems and local agency. Focused primarily at the micro-level of the household and neighborhood, the research aims to increase understanding of the phenomena of urban environmental degradation and local self-management of the urban environment within this coastal city.

## TABLE OF CONTENTS

|  |      |
|--|------|
| <b>ACKNOWLEDGEMENTS</b> .....                                    | iii  |
| <b>ABSTRACT</b> .....  | v    |
| <b>LIST OF TABLES</b> .....                                      | xiv  |
| <b>LIST OF FIGURES</b> .....                                     | xvii |
| <b>LIST OF BOXES</b> .....                                       | xix  |
| <b>CHAPTER 1: URBANIZATION AND ENVIRONMENT: AN OVERVIEW</b> ...  | 1    |
| Urbanization in Global and Regional Context .....                | 2    |
| Global Trends .....  | 3    |
| Uneven Growth and Unequal Growth .....                           | 4    |
| Coastal Settlements .....  | 6    |
| Environmental Degradation .....                                  | 7    |
| Regional Aspects .....   | 8    |
| The Asia-Pacific Economic Region .....                           | 9    |
| Asian Patterns of Urbanization .....                             | 10   |
| Mega-Urban Regions and <i>Desakota</i> .....                     | 11   |
| National and Local Aspects of Urbanization and Environment ..... | 13   |
| Indonesia .....  | 13   |
| The Research Site – Ambon .....                                  | 15   |
| Investigating Environment and Urbanization in Ambon .....        | 17   |
| The Research Questions .....                                     | 18   |
| Overview of the Dissertation .....                               | 19   |

|   |               |
|---|---------------|
| <b>CHAPTER 2: UNDERSTANDING ENVIRONMENTAL MANAGEMENT IN AMBON'S URBAN NEIGHBORHOODS .....</b> | <b>22</b>     |
| Introduction .....  | 22            |
| Political Ecology – Influences and Developments .....   | 23            |
| Human-Environmental Relationships .....   | 24            |
| Studies of Third World Development .....  | 27            |
| Political Ecology as an Integrative Field of Study in Geography .....                         | 29            |
| Political Ecology as a Research Framework .....   | 34            |
| Rural Bias .....  | 35            |
| Theorizations of Society – Political Ecology and Local Practice ....                          | 36            |
| Theorizing Society and Collective Action .....  | 37            |
| Bourdieu's Theory of Practice .....   | 37            |
| Social Actors and Social Structures .....   | 38            |
| Power and Domination .....  | 40            |
| Bourdieu's Ethnomethodology .....   | 45            |
| Bourdieu's Research .....   | 46            |
| Collective Arrangements to Manage the Urban Environment .....                                 | 51            |
| Network Theory .....  | 52            |
| The Household as a Unit of Analysis .....   | 56            |
| Summary: The Study of Environmental Management in Ambon.....                                  | 57            |
| <br><b>CHAPTER 3: METHODOLOGY .....</b>   | <br><b>60</b> |
| Introduction .....  | 60            |
| Rationale and Influences .....  | 60            |
| Grounding Fieldwork -- Interpretation .....   | 61            |
| Background Influences .....   | 63            |
| Field Research .....  | 65            |
| Bureaucracy and Gatekeeping .....   | 66            |
| The Role of Language .....  | 67            |
| Positioning .....   | 68            |

|  |    |
|--|----|
| Gender Issues .....  | 71 |
| A Changing Social Landscape .....                                    | 73 |
| Research Questions / Propositions .....                              | 75 |
| Research Goal .....  | 75 |
| Main Research Questions .....  | 76 |
| Research Propositions and Assumptions .....                          | 76 |
| Logic Linking Data to Questions .....                                | 77 |
| Derivative Questions Guiding Data Collection .....                   | 77 |
| Conceptual Framework .....   | 78 |
| Political Ecology .....  | 78 |
| The Case Study .....   | 80 |
| Advantages of the Case Study as a Research Strategy .....            | 80 |
| Drawbacks of The Case Study Strategy .....                           | 81 |
| Critique of Multiple Methods .....                                   | 82 |
| Methods and Components of the Study and the Selection of Sites ..... | 83 |
| Selection of Methods and Components .....                            | 83 |
| Units of Analysis .....  | 83 |
| Selection of Study Neighborhoods .....                               | 87 |
| Five Methodological Components .....                                 | 87 |
| 1. Archival Research .....   | 88 |
| Environmental Literature Review .....                                | 88 |
| City Statistics .....  | 91 |
| Planning Literature .....  | 91 |
| Political Economy .....  | 91 |
| 2. Environmental Surveys .....                                       | 92 |
| 3. Household Surveys .....   | 92 |
| Selection of Survey Households .....                                 | 94 |
| Administration of Survey .....                                       | 96 |
| 4. Key Informant Interviews .....                                    | 97 |

|                                     |     |
|-------------------------------------|-----|
| Selection of Key Informants .....   | 98  |
| Interview Methods .....             | 98  |
| 5. Participant Observation .....    | 100 |
| Observations of Everyday Life ..... | 100 |
| Organizations and Events .....      | 101 |
| Data Analysis .....                 | 102 |
| Coding and Cleaning .....           | 102 |
| Data Analysis .....                 | 103 |
| Other Limitations on The Data ..... | 106 |
| Summary .....                       | 107 |

|  |            |
|--|------------|
| <b>CHAPTER 4: THE TERRAIN OF PRACTICE. NATIONAL, REGIONAL AND LOCAL ASPECTS OF URBANIZATION IN AMBON .....</b> | <b>110</b> |
| Introduction .....   | 110        |
| The National Setting .....   | 111        |
| Geography .....  | 111        |
| Urbanization in Indonesia .....  | 111        |
| The Structure of Government .....  | 115        |
| Indonesia's New Order State and Integration into the Global Economy ...  | 119        |
| Three Decades of Development Planning .....  | 122        |
| Outcomes of Development Policies .....   | 125        |
| Economic Inequalities .....  | 126        |
| Spatial Polarization of Development .....  | 127        |
| A Chain of Environmental Degradation .....   | 129        |
| Urban Policy and Urban Law .....   | 131        |
| Formal National Urban Policy .....   | 131        |
| Environmental Law and the Urban Environment .....  | 134        |
| <i>Krismon</i> and its Effects .....   | 137        |
| Regional Aspects of Urban Environmental Management .....   | 141        |
| Urban Development in Maluku .....  | 144        |

|   |     |
|---|-----|
| Ambon: The Framework of Everyday Life .....                         | 146 |
| Settlement Origins .....  | 146 |
| Rapid Growth .....  | 151 |
| Contemporary Kotamadya Ambon – Settlement Characteristics .....     | 152 |
| Environmental Conditions .....                                      | 158 |
| Urban Infrastructure and Services .....                             | 165 |
| Sanitation .....  | 166 |
| Solid Waste .....   | 166 |
| Water .....   | 167 |
| Electricity .....   | 168 |
| Health .....  | 168 |
| City Level Planning and Environmental Management .....              | 169 |
| Programs Implemented in Ambon’s Neighborhoods .....                 | 170 |
| The Social and Institutional Contexts of Ambon’s Neighborhoods .... | 173 |
| Neighborhood Organizational Structure .....                         | 174 |
| Civil Service .....   | 177 |
| School .....  | 178 |
| Religion .....  | 178 |
| The Family and Gender .....   | 179 |
| Language .....  | 180 |
| Markets .....   | 181 |
| Workplace .....   | 182 |
| Global Influences .....   | 183 |
| NGOs and other Organizations .....                                  | 184 |
| Summary: The Context of Urban Environmental Management .....        | 185 |

|   |            |
|---|------------|
| <b>CHAPTER 5: ENVIRONMENTAL CONDITIONS AND LOCAL RESPONSE IN<br/>TWO NEIGHBORHOODS: BATU MERAH AND WAIHAONG .....</b> | <b>190</b> |
| Conditions of Existence: Profiles of Batu Merah and Waihaong .....  | 191        |
| A Profile of Batu Merah .....   | 191        |

|   |     |
|---|-----|
| Origins, Settlement Pattern and Physical Conditions ..... | 191 |
| Present Day Population .....                              | 201 |
| Education .....   | 209 |
| Economic Conditions .....                                 | 210 |
| Environmental Conditions .....                            | 222 |
| Housing .....   | 224 |
| Electricity .....   | 225 |
| Sewerage .....  | 225 |
| Drainage .....  | 226 |
| Solid Waste .....   | 228 |
| Paths .....   | 230 |
| Water Supply .....  | 231 |
| Health .....  | 234 |
| Resident Perceptions of Environmental Problems .....      | 236 |
| A Profile of Waihaong .....                               | 248 |
| Origins, Settlement Pattern and Physical Conditions ..... | 248 |
| Present Day Population .....                              | 256 |
| Education .....   | 264 |
| Economic Conditions .....                                 | 266 |
| Environmental Conditions .....                            | 274 |
| Housing .....   | 278 |
| Electricity .....   | 279 |
| Sewerage .....  | 279 |
| Drainage .....  | 280 |
| Solid Waste .....   | 281 |
| Paths .....   | 282 |
| Water Supply .....  | 282 |
| Health .....  | 285 |
| Resident Perceptions of Environmental Problems .....      | 287 |

|  |            |
|--|------------|
| Environmental Management – Actions and Influences .....  | 296        |
| Household Management Actions .....   | 297        |
| Multi-Household and Other Group Arrangements .....   | 298        |
| Sharing Strategies .....   | 299        |
| Labor Pooling .....  | 304        |
| Labor Trading.....   | 305        |
| Arisan .....   | 305        |
| Participation in Government-Led Management Initiatives .....   | 306        |
| Summary: Findings of the Neighborhood-Level Research .....   | 309        |
| <br>   |            |
| <b>CHAPTER 6: THE POLITICAL ECOLOGY OF URBAN ENVIRONMENTAL<br/>MANAGEMENT – FINDINGS AND OUTLOOK .....</b> | <b>315</b> |
| Research Findings – Outline and Significance .....   | 316        |
| The Conditions of Existence .....  | 316        |
| Urban Environmental Management – Actions and Organizations .....   | 321        |
| Implications of Findings for Policy and Planning .....   | 323        |
| Examination of Findings .....  | 327        |
| Problems and Uncertainties of the Research Process .....   | 328        |
| Questionable or Weak Findings .....  | 329        |
| Implications for the Validity and Generalizability of Research .....                                       | 330        |
| The Research Components – An Evaluation .....  | 331        |
| Political Ecology as a Framework for Research .....  | 332        |
| Bourdieu’s Theory of Society and Network Theory .....  | 333        |
| Reflections on Urban Environmental Research and Some<br>Recommendations for Further Study .....            | 337        |
| <br>   |            |
| <b>APPENDICES .....</b>  | <b>341</b> |
| Appendix A. Survey Instrument .....  | 342        |
| Appendix B. Interview Guide for Key Informants .....   | 345        |
| Appendix C. Cross-Tabulations of Selected Data Categories .....  | 347        |

|   |     |
|---|-----|
| Appendix D: Systematic Point Sample procedure ..... | 354 |
| <b>GLOSSARY</b> .....                               | 356 |
| <b>BIBLIOGRAPHY</b> .....                           | 361 |

## LIST OF TABLES

| <u>Table</u> |   | <u>Page</u> |
|--------------|---|-------------|
| 3.1          | Research Questions and Methods Employed. ....   | 84          |
| 3.2          | Overview of Research Design .....   | 89          |
| 3.3          | Types and Sources of Neighborhood Level Data Collected .....  | 90          |
| 3.4          | Types of Information Obtained from Household Survey .....   | 93          |
| 3.5          | Summary of Household Survey Component, 1997-1998 .....  | 95          |
| 3.6          | Occupation and Principal Employment of Key Informants .....   | 99          |
| 4.1          | Major Programs for Urban Management, Indonesia .....  | 133         |
| 4.2          | Major Environmental Regulation and Programs .....   | 136         |
| 4.3          | National Debt as Percentage of GDP .....  | 139         |
| 4.4          | Profile of Ambon's Ethnic Groups, 1996 .....  | 150         |
| 4.5          | Profile of Ambon's Religious Groups, 1996 .....   | 150         |
| 4.6          | Profile of Economic Groups, 1997-1998 .....   | 154         |
| 4.7          | Ambon City Area, Population and Neighborhoods, 2000 .....   | 155         |
| 5.1          | Profile of Batu Merah Neighborhood, Comparing Survey Findings<br>with 1996 Municipal Statistics ..... | 202         |

|      |   |     |
|------|---|-----|
| 5.2  | Profile of Batu Merah Survey Respondents .....  | 206 |
| 5.3  | Level of Education, Batu Merah Survey Respondents .....                                 | 210 |
| 5.4  | Profile of Economic Activities of Surveyed Households,<br>Batu Merah .....              | 212 |
| 5.5  | Household Water Use By Source and Purpose, Batu Merah. ....                             | 232 |
| 5.6  | Commonly Reported Health Problems, Batu Merah .....                                     | 236 |
| 5.7  | Batu Merah Respondent Perceptions of Environmental Problems .....                       | 238 |
| 5.8  | Batu Merah Respondent Satisfaction with Conditions .....                                | 242 |
| 5.9  | Summary of Infrastructure and Services in Batu Merah .....                              | 245 |
| 5.10 | Summary of Household Participation in Networking and Organizations,<br>Batu Merah ..... | 247 |
| 5.11 | Profile of Waihaong Comparing Survey Findings with 1996 Municipal<br>Statistics .....   | 258 |
| 5.12 | Profile of Waihaong Survey Respondents .....  | 260 |
| 5.13 | Level of Education, Waihaong Respondents .....  | 265 |
| 5.14 | Profile of Economic Activities of Surveyed Households,<br>Waihaong .....                | 267 |
| 5.15 | Household Water Use By Source and Purpose, Waihaong .....                               | 283 |

|      |   |     |
|------|---|-----|
| 5.16 | Commonly Reported Health Problems, Waihaong .....                                     | 286 |
| 5.17 | Waihaong Respondent Perceptions of Environmental Problems .....                       | 289 |
| 5.18 | Waihaong Respondent Satisfaction with Conditions .....                                | 291 |
| 5.19 | Summary of Infrastructure and Services, Waihaong .....                                | 293 |
| 5.20 | Summary of Household Participation in Networking and<br>Organizations, Waihaong ..... | 295 |
| 5.21 | Urban Environmental Management in Ambon's Neighborhoods:<br>Actions and Agents .....  | 298 |

## LIST OF FIGURES

| <u>Figure</u> |  | <u>Page</u> |
|---------------|--|-------------|
| 1.1           | Maluku, Indonesia with Ambon City .....                | 16          |
| 4.1           | Indonesia .....  | 112         |
| 4.2           | Urban Centers with Population Over 250,000 .....       | 114         |
| 4.3           | Structure of National Government .....                 | 116         |
| 4.4           | Indonesians Below the Poverty Line .....               | 140         |
| 4.5           | Ambon's Urban Population Growth 1900-2000 .....        | 153         |
| 4.6           | Ambon Island with City and Kotamadya Boundaries .....  | 159         |
| 4.7           | Central Ambon, with Case Study Locations .....         | 160         |
| 5.1           | Batu Merah Neighborhood Map .....                      | 192         |
| 5.2           | Batu Merah Hillslope Housing and Erosion Control ..... | 196         |
| 5.3           | Batu Merah Steep Slope with Multi-Level Housing .....  | 196         |
| 5.4           | Batu Merah Houses Built Upon Graveyard .....           | 197         |
| 5.5           | An Alleyway Serves Many Purposes .....                 | 197         |
| 5.6           | Women Street Vendors, Lower Batu Merah .....           | 213         |
| 5.7           | Soup Vendor, Batu Merah .....                          | 213         |

|      |   |     |
|------|---|-----|
| 5.8  | Food Vendors Prepare Ingredients at Home .....      | 214 |
| 5.9  | Fishing, Batu Merah Waterfront .....                | 215 |
| 5.10 | Pasar Batu Merah .....                              | 215 |
| 5.11 | Map of Waihaong Neighborhood .....                  | 250 |
| 5.12 | Waihaong: Batu Gantung River, Looking Inland .....  | 252 |
| 5.13 | Waihaong: Batu Gantung River, Looking Seaward ..... | 252 |
| 5.14 | Waihaong Business District .....                    | 253 |
| 5.15 | Waihaong Housing .....                              | 253 |
| 5.16 | Waihaong Housing .....                              | 254 |
| 5.17 | Waihaong Housing .....                              | 254 |
| 5.18 | Plastic Goods Vendor, Waihaong .....                | 275 |
| 5.19 | Sundry Store, Waihaong .....                        | 275 |
| 5.20 | Becak Driver, Waihaong .....                        | 276 |
| 5.21 | Street Vendor, Waihaong .....                       | 277 |

## LIST OF BOXES

| <u>Box</u> |   | <u>Page</u> |
|------------|---|-------------|
| 5.1        | Profile: A Becak Driver in Batu Merah ..... | 216         |
| 5.2        | Profile: A Food Hawker in Batu Merah .....  | 219         |
| 5.3        | A Civil Servant in Waihaong .....           | 268         |
| 5.4        | A Fishing Household in Waihaong .....       | 271         |

## **CHAPTER 1**

### **URBANIZATION AND ENVIRONMENTAL MANAGEMENT: AN OVERVIEW**

This work addresses the subject area of urbanization and its linked social and environmental consequences, a relatively recent focus within the larger geographic tradition of investigating interrelationships between people and their environments. The research site is a rapidly urbanizing center on a small tropical island of Indonesia, where conditions evoke particular concerns not only for human survival but also for related issues of coastal management, marine biodiversity and the sustainability of island urbanization. Recent urban growth has brought severe environmental deterioration to the city of Ambon and its surrounds, while local government remains unable to keep up with the infrastructure and service needs of its predominantly low income population. Taking its impetus from political ecology and employing complementary concepts on individual and group practice from respectively, theorist Pierre Bourdieu and network theory, this work enfolds political economic and social analyses of urbanization processes within an investigation of local environmental problems and local agency. Focused primarily at the micro level of the household and neighborhood, the research aims to increase understanding of environmental degradation and the social phenomenon of local self-management of the urban environment.

The main research components examine in detail the conditions of existence and the practicalities of environmental management in the everyday lives of urban residents. At the same time the study seeks to situate these conditions and actions within broader historical, political, physical and economic contexts.

Operating on the premise that the process of research is not discontinuous, but cumulative, the hope of this researcher is that the resultant case studies of poor neighborhoods will contribute to an emergent body of research on local urban environments. Collectively, such an accumulation of case studies may help to inform theoretical understanding of the various factors impinging on the management of the urban environment, as well as generate heightened appreciation for particular contexts and social arrangements.

Having described the aim and general trajectory of the research, the remaining sections of this chapter are dedicated to a consideration of: (1) perceived global and regional trends associated with urbanization; (2) national and local contexts and *conditions of urbanization in Indonesia and Ambon*; and (3) the research questions and the overall organization of this dissertation.

## **URBANIZATION IN GLOBAL AND REGIONAL CONTEXT**

We are presently in the midst of the largest expansion of urbanization ever experienced in world history.<sup>1</sup> Much of this urbanization is occurring in Third World

---

<sup>1</sup> Urbanization is defined as the accelerated growth of urban populations relative to rural populations.

countries,<sup>2</sup> where over 80% of the world's population resides. From a global urbanization level of approximately 36% in 1970, it is estimated that populations will exceed 54% urban by the year 2025, and further, that nearly 90% of global population growth will occur in urban areas of the developing world (WRI 1997, PRB 2000). Urbanization is predicted to remain at especially high levels in industrializing areas, which are major attractants to people seeking improved access to employment, infrastructure and services (WRI 1997).

### ***Global Trends***

A large and diverse body of literature on global urbanization and Third World urbanization exists. Works address a broad array of concerns including the spatial, political, economic and social characteristics of urbanization, and the roles and relationships among cities as concerns the ever-shifting dynamics of capitalism. Generally speaking most works are underpinned by one of three types of theoretical orientation: (1) linear and conservative views of urbanization and development; (2) reformist views; or (3) radical views. These orientations are further addressed in Chapter 2 within a more extensive overview of the historical origins of political ecology, but for now the discussion will be confined to three critical tendencies pertaining to urbanization and its environmental consequences which emerge from this body of literature. The first is an observed polarization of growth and urbanization, with an increasing number of

---

<sup>2</sup> Often described as 'developing', these are countries where conditions of poverty, deprivation and disease remain widespread despite the perpetual pursuit of development policies promoting economic growth. Notwithstanding significant differences among these countries, this label remains in widespread use.

cities of the poor. The second concerns the increasingly coastal nature of settlements. The third concerns the widespread increasing environmental degradation which accompanies urbanization processes, with its implications for quality of life and sustainability of cities.

### Uneven Growth and Unequal Growth

Globally, processes of urban and economic growth have been uneven. The geographical distribution of economic activities has become increasingly polarized, not only in a relatively small number of countries, but also in a limited number of urban areas or regions. This induces population shifts from rural to urban areas, drawing migrants from national and international sources to urban centers where economic opportunities are greatest (Gilbert and Gugler 1992).

Numerous theories address the processes and causes of such spatial polarization (Stillwell 1978, Storper & Walker 1989), but most nevertheless concur that strong tendencies exist for accelerated polarization around national capital cities and areas of manufacturing and investment; forming 'mega-cities' with populations multiple times that of the next largest cities in a national urban hierarchy (ADB 1997, Cohen 1993, Stubbs and Clark 1996). There is also common realization on all fronts of continued integration of countries and cities into a larger 'global economy' via extensive restructuring of economies, widely adopted investment and trade liberalization policies, and the multinational corporation (Hamilton 1986, Jenkins, 1987). 'World cities' (Friedmann 1986, Friedmann and Wolff 1982) have emerged to serve as nodes in

interconnected networks of nations, cities and multinational firms<sup>3</sup> (Doel 1999, Hymer 1972, Harrison 1989), as well as control centers for global capital, and channelers of information (Rimmer 1996, Sassen 1994).

Not only is the pattern of urbanization spatially uneven, but as alluded to above, unevenness is also manifested socially and economically. Both outside and inside cities, huge social disparities exist in terms of income and employment opportunities. Peet and Watts (1996) summarize how these inequalities are growing:

According to the United Nations Development Program, the polarization of global wealth doubled between 1960 and 1989. In the *fin de siècle* world economy, 82.7 percent of global income is accounted for by the wealthiest 20 percent, while the poorest 20 percent account for 1.4 percent of world income. In 1960 the top fifth of the world's population made thirty times more than the bottom fifth: by 1989 the disparity had grown to sixty times... In 1999, 200 million more people lived in abject poverty (less than US \$1 a day) than in 1987.

Thus, as populations shift increasingly toward urban areas, the geography of poverty is also changing. Although for many, the urban setting may provide opportunities for a better life, nevertheless, most cities of the developing world today evince highly unequal power relations (Potter and Lloyd-Evans 1998, Potter and Salau

---

<sup>3</sup> Today over half of the largest economies in the world are corporate economies, with annual sales of corporations surpassing the GDP of countries. General Motors, Mitsubishi, Exxon and Wal-Mart now have more economic clout than, for example, Hong Kong, Thailand, Malaysia, Singapore, and the Philippines (Fortune 1999, World Bank 1998). Transnational corporations and banks increasingly form new global alliances, with the flow of goods, services and especially money expanding across national lines. By 1999 multinationals accounted for about a third of all global exports (UNDP 2000).

1990). Increasingly, these cities are made up of a large population of urban poor, and a small elite population, with the benefits of social investments distributed unevenly between these social classes. In other words:

Millions of people have exchanged an abject rural poverty for an equally abject urban poverty (Costa et al. 1989:4).

The scenario of combined rapid urbanization and increasing inequality is a disturbing one – particularly so because many governments lack the capacity to provide necessary social and environmental management services for their growing urban populations (Hardoy and Satterthwaite 1989). Even in the unlikely event that the growth of large cities begins to decelerate, there will remain huge metropolises in which a large proportion of population will be poor and underserved by government as concerns basic services and infrastructure.

### Coastal Settlements

Another apparent trend is that worldwide, populations are becoming more coastal (NOAA 1999, Ponting 1999). Contending with the effects of the growth of coastal settlements will require advancements in management tools and techniques, and improved capacity of governments to respond in the centuries ahead (Zarsky and Hunter 1999). The growth of cities on small islands and in tropical coastal areas create particularly formidable challenges as these zones are among the most dynamic and complex environments on earth (Higgins 1982, Connell and Lea 1995). For example, the

isolated nature of tropical islands generally results in fewer species but high levels of endemism, that is, species of plants and animals that are native to that location and nowhere else (Monk et al. 1997). This makes islands ‘fragile time capsules’ (Adams 1991). Islands also possess finite resources and limited ‘sinks’ to absorb wastes and pollutants.

Moreover, tropical climates and geology create conditions of high rainfall where topsoil is thin and easily lost, often leading to increased flood, landslide and coastal erosion hazards. Thus, seemingly minor human disturbances are far more likely to precipitate major disasters in these settings. Furthermore, many coastal ecosystems are highly productive systems which not only represent important sources of food for human populations, but may also be centers of high biological diversity, and provide protective functions against flood, tsunami, and other hazards. On the whole, these systems are being badly degraded worldwide (Eden 1996, Clark 1998), and negative impacts on human settlements are increasingly seen.

### Environmental Degradation

There are clear indications that many cities of the poor are also becoming centers of degradation. Not only are urban sprawl, congestion, deteriorating infrastructure, hazards, exposure to pollutants and pathogens now commonplace, but there are

indications that environmental degradation and pollution are becoming life-threatening in many places (Hardoy, Mitlin and Satterthwaite 1992)<sup>4</sup>.

The fact that many governments have been unable to keep up with the ever-increasing infrastructure and service needs of their expanding populations raises concerns for the long-term sustainability of cities themselves (Rigg 1997, Harpham et al. 1988, Leonard 1989, IGU 1984, Drakakis-Smith 2000). According to the United Nations, 20% of the urban populations in Asia's poorest countries lack access to basic health care; 25% do not have adequate housing; 39% experience inadequate sanitation and perhaps as many as 30% lack access to clean water (UNDP 2000). This managerial crisis frequently involves financial constraints and weak political and social institutions for environmental planning and management, particularly at the local level. Oftentimes this is also underlain by an overall disregard for the environment in matters of national policy and planning. Additional constraints on governments include wars, the complex business of managing fragile tropical environments, and problems of geography such as scale and accessibility. In essence, the limited capacity of government means that functionally, the responsibility for environmental management at the city level falls upon the majority urban poor; the group least well situated to shoulder such responsibility.

### ***Regional Aspects***

It is important to assess regional, as well as global, influences and trends now converging around the urbanization of Ambon City.

## The Asia-Pacific Economic Region

The Asia Pacific region – into which Indonesia is economically integrated – has been undergoing an urban transition since the 1960s and presently includes 13 of the world's 20 largest cities<sup>5</sup>. It is predicted that by the year 2015, 27 of the world's 33 largest cities will be in Asia alone. By the year 2025, its population is expected to be more than 50% urban with the vast majority residing in large cities (Lo and Yeung 1996, McGee 1995).

The Asia-Pacific region has been described as 'the most dynamic region in the world' in terms of urbanization and economic growth (Douglass and Ong 2001). Two decades of high rates of investment and economic growth in many parts of the region invoked pronouncements of an 'economic miracle' (World Bank 1993) and speculation about a new 'Pacific Century' (Borthwick 1998, Linder 1996). Yet despite the remarkable successes of some countries (including Indonesia) and groups of countries in achieving economic growth and in raising per capita incomes, subsequent reorganizations of international capital, heavy dependence on foreign investment and trade, and periodic crises in the region all raise new uncertainties about the viability of this model. In particular, the devastating Asian economic crisis of 1997-1999 has prompted many to rethink the meaning of successful 'development'. In the wake of this crisis, many cities and countries of this region remain poor and /or continue to experience deteriorating living conditions. As we shall see in Chapter 4, not only has Indonesia's economic

---

<sup>4</sup> Again, it is important to bear in mind that much urbanization is the result of rural-to-urban migration, as large numbers of people move to urban areas to escape often worse conditions in rural areas.

position in the region shifted dramatically over the past several decades, but such shifts are also accompanied by environmental destruction, oil shocks, mass labor migration, and increasing polarization of economic power around Jakarta and a few other large cities.

### Asian Patterns of Urbanization

Alongside the views which regard polarization and urbanization as phenomena associated with the workings of global capitalism, there also exists a body of literature which addresses questions of the past origins of the Asian city and locates contemporary urbanization within ancient political and cultural traditions. The basic thesis of writers in this tradition is that different historical varieties of urbanism yield distinct outcomes in terms of contemporary transformations of local society and space.

One stream of this literature approaches the question of development and the nature of cities from the perspective of distinctively Asian or regional urban forms. Wheatley (1972; 1983) contrasts *urban imposition* and *urban generation*, the former defined as interaction between social systems where institutions of one system are diffused to another (as in empire building and its imposition of values) and the latter defined as a type of endogenous systematic evolution of society. Following Wheatley, Reed (1976) proposes two types of ancient 'indigenous' urban centers: the coastal city state (an 'imposed' form) and the inland agrarian sacred city (an 'endogenous' form). According to Reed, the former has evolved through expansion of local trade relations and

---

<sup>5</sup> These are Tokyo, New York, Seoul, Mexico City, Bombay, Sao Paulo, Osaka, Los Angeles, Manila, Jakarta, Calcutta, Delhi, London, Shanghai, Rio de Janeiro, and Karachi. Asia presently has eleven cities of ten million or more people.

organized access to resources, the latter, gaining its wealth through appropriations of goods and labor.

Addressing the modern Southeast Asian city, O'Connor (1983) postulates another indigenous theory of urbanism based in two enduring 'symbolic complexes': hierarchy and community; both presumed to be indigenous attributes of cities. A contemporary urban status hierarchy is seen to have effectively taken over where past monarchies left off, while community is viewed as a modern version of extended family/traditional kinship relations as well as a structure which perpetuates ancient traditions of patron-client relations and patriarchal rule. According to O'Connor, together these constitute modern manifestations of a long-standing tradition of an urban-centered division of power in Southeast Asia, with ruler, court and capital now replaced by respectively, the modern state, modern status hierarchies and modern capital. O'Connor and others also consider how these key cultural influences may have carried over into contemporary urban spatial forms and social systems.

#### Mega Urban Regions and *Desakota*

Addressing the development of the city from yet another perspective, McGee (1991:9) argues for distinctive spatio-cultural patterns in the growth of contemporary Southeast Asian cities. McGee contends that urbanization is not city-based but *regionally* based:

There is a symbiosis of rural and urban activities which are fused and complementary (McGee 1994:17).

As distinguished from the phenomenon of large cities absorbing their surrounding rural hinterlands as they grow (Forbes 1996:85, Brookfield et al. 1991), this pattern includes several cities and their transportation corridors linked together into functional regions where hybrids of urban and regional cultures are generated. According to McGee, this process of '*Kotadesasi*' consists of the extension of urban areas of large cities into surrounding hinterlands, creating areas of high density, mixed urban-agricultural activity characterized by 'complex rural-urban networks' (McGee 1994:93). *Kotadesasi* is identified by six main features: 1) the shifting of urban activities into agricultural areas; 2) a great mixture of activities, often even within households; 3) a great fluidity and mobility of populations; 4) intensity of land use mix (often rice mixed with other intensive uses); 5) an increased proportion of females in the labor force; and 6) the peripheral area is invisible to the state and may not be subject to urban regulations. Here, McGee and other writers in this vein (see Ginsberg, Koppel and McGee 1991) are not suggesting that a particular type of urban system results from a pre-existing agro-economic or other form, but that these systems are transition zones providing the *possibilities* for the emergence of certain urban systems and regions.

These varied perspectives on historical origins and development patterns of the Asian city lead us to a recognition that many 'capitalist' cities have been built upon pre-capitalist foundations and/or continue to include multiple modes of production. They also remind us that most are syncretic products and compel us to examine the ways in

which various cultural elements may have been carried forward into present societies and landscapes, as well as to consider the possibility of similar outcomes across space. Further, these perspectives raise questions about the meanings of *urban* versus *rural*, and point up the need to recognize urban-rural linkages (at minimum in terms of food production and mobile labor forces).

## **NATIONAL AND LOCAL ASPECTS OF URBANIZATION AND ENVIRONMENT**

### ***Indonesia***

Like many other countries of the region, Indonesia has experienced three decades of intense economic restructuring and rapid urbanization. Following a path of accelerated industrialization via the pursuit of foreign investment, Indonesia's government successfully maintained a rapid rate of economic growth for most of that period. Indonesia has also experienced rapid population growth and increasing urbanization since the 1970s. According to national statistics, urbanites presently make up about 39% of the Indonesia's (approximately 215 million) population. With a population doubling time of just 44 years and present urbanization rates of about 5%, over half of the national population will be urban by the year 2020 (BPS Indonesia 1990, BPS Indonesia Website 2000). Major urbanization trends include continuing high rates of rural-urban migration and polarization, particularly around Jakarta and other cities on Java where investment is high (Gardiner and Oey-Gardiner 1991); and increasing

linkages between primary cities, outer island industrial and port cities, and centers elsewhere in the region (Soegijoko et al. 1997, Rimmer 1996).

Generally speaking, the spatial polarization of economic activity and human populations around cities is associated with enormous disparities in income and quality of life for Indonesians. In spite of the spectacular growth rates achieved in the latter portion of the 20<sup>th</sup> Century, Indonesia remains a low-income country. The neglect of agriculture has led to deepening rural poverty. Social and environmental disparities within urban areas are also widening, with the disproportionate growth of low paying service economies, and rapidly expanding populations inhabiting increasingly marginal spaces (World Bank 2000, ADFAT 2000). These circumstances have been exacerbated by the crushing Asian economic crisis of 1997-98, which plunged over 40% of the national population below the poverty line, badly crippled government's ability to perform social welfare and environmental management functions, and created strong pressures for natural resource plundering (ADB 1998, Schwarz 2000:409)<sup>6</sup>. The effects of this crisis on Indonesia's economy and populace also continue to be felt today in terms of high unemployment and underemployment, and lagging government services (FEER 1998b). The origins and impacts of this crisis, dubbed *Krisis moneter* (*Krismon* for short), are examined further in Chapter 4.

---

<sup>6</sup> For a discussion of urban-rural migration and associated spatial trends associated with Krismon, see *Inside Indonesia 1999*.

### *The Research Site – Ambon*

Ambon City is a regional capital city on a small island of the same name in the Eastern province of Maluku (Moluccas), Indonesia (Figure 1.1). An entrepot and main city of Indonesia, Ambon currently faces a dual urbanization/environmental degradation crisis. Over the last three decades Ambon has experienced rapid population growth and urban expansion, with the city absorbing a disproportionately large share of regional population. The city has more than doubled in size since 1970, mainly through rural immigration, but with natural increase playing an increasingly large role. With a population approaching 350,000, it is presently more than four times the size of the next largest city in the province of Maluku (BPS Maluku 1996, Walikotamadya Daerah Tk.II 1995). As we shall see in Chapter 4, pressures driving change are related less to industrialization and more to Ambon's attractiveness as a regional market center and port (Eriako Associates 1997, Meyer and Hardjodimedjo, 1989). Migrants are attracted by factors such as large-scale infrastructure investments associated with national export-oriented development policies, government-sector jobs, increased availability of services, and enhanced opportunities for trade. These 'pull' factors are in large part generated via the process of Indonesia's incorporation into the larger global economy.

Nevertheless, because Ambon is geographically and politically remote from the center (Jakarta), government spending on urban infrastructure and services has not kept up with population growth, nor have municipal plans for managed growth or coastal management been implemented. Lacking the capability to contend with its mounting social and environmental problems, local government has depended heavily upon



Source: Bappeda Tk. I Maluku 1996.

Figure 1.1. Maluku Province.

volunteer and self-help efforts of local residents, more than 70% of whom presently live in poverty (BPS Indonesia 2001). Despite ongoing efforts by both government and residents, the present condition of the city's terrestrial and marine environments can only be described as extremely degraded and hazardous to human health.

## **INVESTIGATING URBANIZATION AND ENVIRONMENT IN AMBON**

In the geographical tradition, this study examines interlinked meanings of environmental and social conditions of existence. The main questions under investigation concern the conditions of urbanization and environment in low income, crowded and environmentally degraded urban neighborhoods of Ambon, Eastern Indonesia. Here, inquiry is focused not only upon everyday living conditions experienced by local people and the actions they take to manage these conditions, but also upon factors which condition lifespaces and local agency.

Investigation involves multiple areas of influence (physical, political, economic, cultural, etc.), and multiple levels of inquiry (local, regional, national, international). This multi-layered approach is made possible by employing a political ecology framework. While a familiar approach in studies of rural and agricultural systems, political ecology is seldom employed in investigations of the urban environment. Described as an area of study which combines studies of environment with political economy, a political ecology perspective begins with the problem of local degradation and seeks to uncover the linked social, economic and political processes associated with that degradation. In addition, on the whole, political ecologists tend to treat the local

and/or regional setting (which includes environmental conditions/outcomes) as a unique product of individuals and groups responding to general processes. These latter processes or structures involve the operations of capitalism, both locally and within the increasingly integrated capitalist world economy. Meanwhile, conceptualizations of the dynamic interactions between agents and processes are poorly developed within political ecology studies. In order to meet this challenge, this work combines within the political ecology framework insights on the constitution of the individual from Pierre Bourdieu, with ideas on networks and group practice loosely adapted from network theory. A model of the household as a basic unit of social organization is also employed to expand the latter analysis.

### ***The Research Questions***

The research goals are to increase understanding of (1) existing environmental conditions in expanding cities of the poor; and (2) the social phenomenon of local self-management of the urban environment. The present study employs a case study strategy and political ecology framework to document and compare conditions of existence, local agency, and key factors conditioning local environmental management in two neighborhoods in the city of Ambon, Eastern Indonesia.

Primary questions to be answered are:

Question 1: What are the conditions of existence in each of the neighborhoods?

Question 2: What are the ways in which households and groups act (collaboratively and otherwise) to provide urban environmental amenities and services?

Question 3: Can specific factors which facilitate or constrain local management activities be identified?

The research propositions and assumptions are:

A1. Previous research indicates that people manage their habitats (such as the household and neighborhood) and know much about them. At the same time the environment surrounds, shapes and influences local life. In other words, society and urban environments are mutually constituting.

A2. Social and environmental change occur within politicized environments. Factors operating at one level (local, national or international) may influence (positively or negatively) society and environment at another level.

### ***Overview of the Dissertation***

The following pages attempt a search to unravel the details of social life and living environments of Ambon – what Blaikie and Brookfield (1987) term, the ‘roles and influence of various actors vis-a-vis the existing state of the environment’ – within the context of rapid change. Gathered at the onset of *Krismon*, Indonesia’s severe economic crisis (mid-1997 through mid-1998), the research data reflect a time of social, political and material transformations in Indonesia.

Chapter 2 begins by unfolding the theory of the study. It establishes the area of political ecology as a confluence of two main areas of thought in geography, namely, perspectives on human-environmental relationships and Third World development theory. Political ecology is depicted as a product of various movements within this corpus of work incorporating the concerns of ecological and critical / radical traditions. While this potentially entails manyfold combinations of theory, the present framework combines ideas on the constitution of society and individual *practice* from theorist Pierre Bourdieu, with a network model of reflexive agency and social (group) organizing. This latter aspect also incorporates a view of the household as a basic unit of social organization.

Moving into the realm of field research, Chapter 3 presents the research questions and outlines the study's methodology, which follows from its theory. The case study research design described entails multiple data collection methods and is formulated to elicit qualitative and quantitative data in three key areas: political economy, environment, and local social relations. Principal data gathering tools employed are researcher observations of daily life, a household survey using a questionnaire, key informant interviews, archival research, and environmental (field) surveys.

Chapter 4 is a background chapter which addresses the national, regional and municipal contexts of political economy and urbanization in Ambon, and here, dominant structural forces shaping environments and conditions of existence are considered. The first part of this chapter focuses on the national context, presenting an historical analysis of the political economy of urbanization and urban environmental management in

Indonesia. Government structures and practices and the development of national political culture are examined at length due to their powerful influences on Indonesian social life. The second section focuses on the local urban environmental and social settings of Ambon City, describing the history and pattern of settlement, prevailing environmental conditions, urban planning and management, and everyday social relations. The result is an in-depth depiction of global, national and local forces and processes shaping neighborhood life in Ambon.

Chapter 5 then presents the micro-level empirical case study findings as derived from the multiple data sources laid out in Chapter 3. Findings on physical, economic, political and social conditions for each of the two case study neighborhoods are outlined and compared. A second section examines the range of spontaneous practices and arrangements households and groups employ in managing habitats, and considers these alongside the structural and other influences described in previous chapters. Chapter 6 then sums up the main research findings and discusses their implications for future interventions. Limitations of the study that may affect the validity or generalizability of results are discussed, and an evaluation of political ecology in practice is offered. A final section reflects on the area of urban environmental research and makes recommendations for further study.

## CHAPTER 2

### UNDERSTANDING ENVIRONMENTAL MANAGEMENT IN AMBON'S URBAN NEIGHBORHOODS

#### INTRODUCTION

No single disciplinary niche or body of knowledge presently defines the study of the urban environment in the developing world, and no single coherent theory or framework exists to summarize ways of thinking about and addressing urban environmental problems. Instead, inquiry has occurred within multiple fields (including geography, planning, sociology, anthropology, urban design, political science, and public health), and has drawn from a multitude of theoretical perspectives. To frame the investigation of the urban environment, this study employs a political ecology perspective. Political ecology is an integrative area of study in geography which links the political economy of development with perspectives on society and environmental degradation. An amalgam of theories and ideas drawn from various sub-areas, that has developed over a period of about two decades, political ecology represents a synthetic and dynamic area of geographical study.

This chapter is in two parts. The first section provides historical background, surveying the province of political ecology, and situating it as a confluence of two major

traditions in geography: human-environment relations and third world development thought. This section also offers a general critique of political ecology, summarizing its strengths and weaknesses with particular reference to its utility as a framework for investigating the urban environment. A second section then addresses theoretical concerns for social production and social organization which underlie collective actions to manage urban habitats. Pierre Bourdieu's model of structure and agency is proposed as a way of conceptualizing the constitution of society and the nature of individual practice. The theory of the household is further offered up as a supporting framework for analyzing micro-level social relations; and finally an application of network theory is marshaled to depict collective environmental management actions among households and individuals. All of these latter areas of theory operate to augment and refine political ecology's basic framework.

## **POLITICAL ECOLOGY – INFLUENCES AND DEVELOPMENTS**

Understanding the scope and potential of the complex fusion called political ecology requires an investigation of its origins, influences, and development. In this section, the origin of political ecology is characterized as a convergence of ideas from two main streams in geography: namely, those concerning human-environment relationships and theories of Third World development. These are, of course both vast areas and a comprehensive coverage of their terrain and various conjunctions is not possible within a work of this scope. Instead, the following represents a selective engagement with the streams of thought which have most influenced the development of

political ecology; and in particular, those strands of political ecology drawn upon in this study. This account should not be construed as building an argument for a single 'best' interpretation or application of political ecology (nor any of its component theories of environment, political economy or society). Rather it simply serves as an illustration and reminder that each individual political ecology research effort is shaped by context-specific factors, as well as by the philosophical orientation, background, and methodological choices of the researcher.

### ***Human – Environment Relationships***

The human relationship with the environmental is a long-standing theme in the history of geographic thought (Johnston 1991, Stoddart 1986, Goudie 1981, Ponting 1991). Connections between the cultural and the material, the political and the environmental, the social and the spatial, have been constant subjects, and numerous combinations of theory have been employed to investigate them. Among geographers, the topic of the human impact on the environment was first explored in detail by George Perkins Marsh (1801-1882). Besides looking at worldwide changes in landscapes and ecosystems, Marsh conducted detailed examinations of the impacts of cities on the environment, which included considerations of human lifestyle changes, economic activities, and increasing city size. Three decades later French geographer Elisee Reclus (1830 -1900) turned his analysis to the conditions of the people living in these environments. Reclus argued that the problems in the relationships of man and land lie

not with the enumeration of people or resources but with social structures. Moreover, he considered an appreciation of nature to be as much aesthetic and emotional as scientific.

This tradition of seeking links between human society and environment was continued by Paul Vidal de la Blache and his French school of regional geography. This strand incorporated notions of a human-environmental dialectic ('possibilism') and harmony with nature while standing in direct opposition to the then-popular tradition of 'environmental determinism'<sup>1</sup> (Vidal de la Blache 1926, Martin 1951, Cloke, Philo & Sadler 1991:64).

Notwithstanding these efforts, human interrelationships with environments remained a sub-current in geography until the early-to-mid 20th Century, when the thread was again taken up by human ecologists, cultural geographers, and cultural ecologists. Important emergent themes of these decades included 'systematic' views of how social and cultural forms maintain an existing ecological relationship with the environment (Park 1934, Sauer 1938); ecological 'adaptation' to explicate the genesis, maintenance, and transformation of social forms, i.e., environment as impetus and limiter (Barrows 1923, Sahlins 1964, Steward 1953, Thomas 1956); and possibilist views such as Sauer's (1956) *anthropogeography* (environment is both cause and effect of human society).

Subsequently, the decades of the 1960s and 1970s saw the emergence of popular environmental movements in the US and Europe, and the expansion of environmental

---

<sup>1</sup> Environmental determinism attributes human settlement patterns and way of life to environmental parameters, with humans as essentially passive agents. Possibilists recognize that nature poses limits but see agents as perceiving and evaluating options for using the environment, and selecting those which best serve cultural needs.

themes in geography such as 'ecosystem' and 'cybernetic' concepts (Brookfield 1964, Detwyler 1971, Berry 1974, Southwick 1976, Simmons 1989, Walker 1979).

Collectively these currents embodied increasingly sophisticated and diverse views of socio-environmental relationships, many of which influenced political ecology and associated trajectories in subsequent decades (see for example agro-ecologists Bebbington 1988, Bunce 1993; cultural ecologists Butzer 1989, Denevan 1983, Grossman 1984; and environmental historians Boomgaard 1997, B.L. Turner 1990, Worster 1993), although only the basic ecological concept embedded in these – broadly, interconnected networks of matter, processes, and systems – is common to all political ecology approaches.

While these perspectives mainly addressed rural settings and/or traditional societies, some involved studies of the urban setting. For example ecological and systems perspectives sparked investigations into the 'metabolism of cities' and 'cities as (eco)systems' (Boyden 1979, Whyte 1985). The decades of the 1970s and 1980s also witnessed a revival of the works of Marsh, Reclus, Vidal, and others which in part engendered a movement of environmental planning and design of human settlements. This movement, exemplified by the modern-day environmental planner Ian McHarg, took its inspiration from the outdoors and emphasized the centrality of preserving and enhancing nature as habitat of humans:

Clearly the problem of man and nature is not one of providing a decorative background for the human play, or even ameliorating the grim city: it is the necessity of sustaining nature as source of

life, milieu, teacher, sanctum, challenge, and, most of all, of rediscovering nature's corollary of the unknown in the self, the source of meaning (McHarg 1971:19).

Today's geographers and urban planners continue to incorporate ideas of system, equilibrium, habitat, health, and stewardship, employing such concepts as sustainable cities (Spim 1984, Stren, White and Whitney 1991, Nijkamp 1994); ecocities (Roseland 1991); healthy cities (Kenzer 1999; Cairncross, Hardoy and Satterthwaite 1990); ecovillages (Hultman 1993); and ecological footprint (Turner 1995, Walker and Rees 1991, Wackernagel and Rees 1995.). While these urban ecological views include an appreciation for the complexities of human - environment interactions, most maintain a more or less apolitical and technocratic stance regarding interventions for environmental management. As we shall see shortly, the radical perspective of most political ecologists holds that wider scale and interlinked political and economic changes, not just technical changes, are required to create liveable environments.

### ***Studies of Third World Development***

The 1970s and 1980s saw many reactions to and critiques of environmental and cultural approaches, in particular concerning their overemphasis on the local and physical, and their neglect of political and economic considerations. Critiques mainly drew from neo-Marxist and Marxian theories emerging from the area of third world development studies.<sup>2</sup> These studies addressed the question of why – despite government

---

<sup>2</sup> The term third world was originally used to distinguish colonial ('first' world) versus colonized ('third' world) countries; the colonization of the latter which correlated with groups of people living in poverty and

policies and programs, development assistance provided by international agencies, the growth of international capital and the received wisdom (development theory and models) of 'development' scholars – conditions of poverty, poor quality of life and environmental destruction persist worldwide. Many pointed out that in many cases the result of mainstream models and development activities appeared to be increased income inequality, expanded national burdens of debt and dependence, and mounting environmental disaster. For them this signaled a need to return to a basic understanding of the meaning of development.

During this period a large and diverse body of Marxist-influenced critiques of mainstream (*i.e.*, conservative, linear and modernist) theories of development became influential in geography and other social sciences disciplines (Johnston 1986:97, Taylor 1979, Peet and Thrift 1989, Drakakis-Smith 1990). These critiques recast development as occurring within a context of multiple modes of production and/or transformations of global capitalism, Development geographers initially looked mainly to radical dependency theory (Frank 1988, Dos Santos 1976, Cardoso and Faletto 1979), world systems theory (Wallerstein 1974), modes of production theory (Laclau 1977, Alavi 1972, Murray 1971) and combined approaches such as (modes of production + dependency) of Amin (1976, 1990). Subsequently, retheorizations of neo-Marxist and Marxian theory (particularly its political economy) and reactions to emerging crises (economic, social and environmental) in third world countries have been ongoing

---

inequality. The term has also been used more generally to refer to countries and people who have experienced privations as a result of larger economic structures and forces imposed by other countries, international agencies and organizations. Today the term is used rather more loosely to designate poor

influences in developing political ecology for the past two decades (Peet and Watts 1996:9, Bryant and Bailey 1997:12)

### ***Political Ecology as an Integrative Field of Study in Geography***

Where historically the environmental tradition in geography generally suffered from inattention to the political and economic spheres, the third world development tradition until recently tended to exhibit precisely the opposite bias: namely a narrow focus on the economic and social aspects of human welfare to the neglect of overall ecological and environmental concerns. Political ecology represents one of several areas of study in geography where there has been a convergence of these concerns.

As described above, political ecology itself consists of a group of approaches which represent a fusion of the various radical and/or critical traditions on the political economy of development with perspectives on society and environment. In geography, the origins of political ecology are most commonly traced to the writings of development geographer Piers Blaikie, and cultural geographer Harold Brookfield.<sup>3</sup> A basic political ecology approach was first delineated by Blaikie (1985) and later more fully elaborated in a collaborative project entitled *Land Degradation and Society* (1987). Blaikie and Brookfield labeled their approach 'regional political ecology', offering the following definition:

---

countries and as such may be too universalizing, obscuring important differences between peoples, nations, and regions (see Alcalde 1987, Haque 1999).

<sup>3</sup> The most comprehensive work on the historical genesis and multiple trajectories of political ecology is Bryant and Bailey's *Third World Political Ecology* (1997).

The phrase 'political ecology' combines the concerns of ecology and a broadly defined political economy. Together this encompasses the constantly shifting relations between society and land-based resources, and also within classes and groups within society itself (Blaikie and Brookfield 1987:17).

Their version of political ecology combines dependency theory with basic ecological concepts, political economy and an actor-based focus. The resulting framework aims to conceptualize the 'resource-related' actions of (rural) peoples as situated within webs of local and global social relations and asserts that economic inequality readily translates into political inequality – as broadly defined to include *socio-spatial* (i.e., habitat, subsistence, and ecological) issues.

Over the past two decades, most core aspects of Blaikie and Brookfield's original formulation – environmental degradation, societal relationship with nature, political economy and development critique – have all been reworked and extended (Bryant 1992), within a movement representing an overall expansion of political ecology's theory and subject matter. In particular, political ecology has undergone significant expansions in three areas of its theory: first, political economy, in particular neo-Marxist thought about nature, capital, and society (Harvey 1993, Blaikie 1995, Benton, 1989, Escobar 1996, Martinez-Alier 1990, J. O'Connor 1988, 1991, M. O'Connor 1993); second, in new formulations and refinements of ecological concepts (Zimmerer 1994, Grossman 1977, Zelinsky 1988, Waddell 1975); and third, in the area of politics and the politicization of the environment (Ghai and Vivian 1992, Friedmann and Rangan 1993, Bullard 1993).

Political ecology's subject matter has also expanded accordingly, addressing such diverse areas as links between global capitalism and environmental change (Hecht and Cockburn 1989, Horowitz and Little 1987, Neumann 1992); investigations into production systems, political power, and access by local groups (Peluso 1992, Grossman 1993, Schroeder and Suryananta 1996, Stonich 1993); *social movements and the politics of environmentalism* (Hecht 1985, Friedmann and Rangan 1993); and specific micro-politics and relations as influenced by the state and structural forces (Basset 1988, Moore 1996).

As a consequence of this ongoing expansion and recombination, there exist today many political ecologies, not just one. Thus, just as Blaikie and Brookfield (1987:25) argued for a 'plurality of purpose and flexibility of explanation' in political ecology field work, political ecology's epistemology, objects of study, and methods of analysis now criss-cross multiple terrains, its elements recombined in various permutations. This also underscores the fact that political ecology does not constitute a single, coherent theory. It has been variously dubbed a 'research agenda' (Bryant 1992:1), a 'perspective' (Neumann 1992:87), a 'model' (Basset 1988:454), an 'analytical framework' (Bell and Roberts 1991: 302), a 'complex' (Bryant and Bailey 1997:9), 'a set of abstract propositions' and 'a specialized branch of critical social theory' (Peet and Watts 1996:36).

In an effort to categorize these various developments, Bryant and Bailey (1997:22) identify five main types of 'approaches' that have been used alone or in combination in political ecology research. In the first type, described as a 'traditional'

geographic approach, the main focus is a specific environmental *problem* such as land degradation or resource depletion, with the addition of a political economic analysis. Examples include Blaikie and Brookfield's (1987) work on soil erosion and land degradation in rural third world areas, the work of Bell and Roberts (1991) and Zinyama (1996) on soil erosion and destruction of hydrological systems; Gillis (1988) on tropical deforestation; and Watts (1983) on hazards. To a considerable extent, the present research follows this model in laying emphasis upon the problem of urban environmental degradation.

The second type of approach focuses primarily upon the epistemological underpinnings, construction and use of certain ideas or 'discourses' as they influence environmental outcomes. Critiques of sustainable development (Escobar 1996, Redclift 1988) typify this approach. Other examples of such 'conceptual' approaches include studies of dominant discourses regarding natural disasters (Harwell 1999), forest management / deforestation (Jarosz 1996), and soil conservation (Zimmerer 1993a).

The third approach, labeled 'Regional Political Ecology' (also see Jarosz 1993) frames investigation of political and environmental problems within a regional context. For example, political ecology investigations have addressed land and resource degradation in Amazonia (Chapman 1989, Schmink and Wood 1987, Hecht 1985); Southeast Asia (Hurst 1990), East Kalimantan (Peluso 1993), The Peruvian Highlands (Zimmerer 1991) and North-central China (Hershkovitz 1993).

The fourth approach emphasizes, and frames social and environmental problems within various socioeconomic categories such as class, ethnicity or gender. This

approach usually emphasizes struggles for control over resources. It includes both investigations of influences of larger structures upon local groups, particularly indigenous peoples or minority groups (Salafsky et al. 1993, Slater 2000), and those concerning micro-level social and political aspects, such as household or village power dynamics or gender relations, regarding control of environmental resources (Carney 1993, Schroeder 1993, Watts 1989).

The fifth type of approach is actor-oriented. It conceptualizes the social world as a plurality of overlapping and competing interests, and seeks to understand the characteristics and actions of different sets of actors as regards linked social and environmental change. Emphasizing the need for more such actor-based approaches Bryant and Bailey (1997:26) argue that political ecology research must:

..ground an understanding of global (and regional or local) processes in an appreciation of the role of specific actors in their development – and thereby to render these processes simultaneously more tangible and more meaningful in political terms..

Examples of such approaches include Basset's (1988) examination of how peasant-herder and various other groups and interests come in conflict over various land uses, and Moore's (1993) investigation of historical struggles between indigenous Kaerezi peoples of Eastern Zimbabwe and colonial and postcolonial states as differentiated into multiple interests. In the urban setting, Pezzoli (1993) describes state-community relations surrounding efforts of local grassroots actors and external agents to create a popular social movement for ecologically-integrated settlements in Mexico City.

The present investigation of household and group arrangements for habitat management in Ambon City combines the actor-based approach with a critique of the prevailing market-centered development model, and a detailed environmental analysis. Analysis proceeds from the level of the household and its internal social and material processes and relations, to the local networks in which they are embedded, to links with wider social, political, cultural, economic and technological relations and forces.

### ***Political Ecology as a Research Framework***

Political ecology's main strength as a research framework lies in its combined 'ecological' view of society and habitats, critical orientation, political-economy analysis, and capacity to address multiple levels and actors. These components enable a holistic and detailed study of the processes of environmental and social transformations.

The most common criticism of political ecology concerns its abovementioned lack of unitary theory. However, as we have seen, political ecology is not considered a theory by its practitioners but rather as a kitbag of related theories on environment, political economy, and the politicization of the environment. It is neither possible nor desirable to merge all these into a single all-encompassing model. On the contrary, such an arrangement stimulates the formulation of new eclectic combinations of theory from multiple perspectives; providing a variety of ways to investigate the complexity and diversity of the world (Cloke, Philo & Sadler 1991:203; Thiele 1997). Perhaps more than any other intellectual tradition in geography, political ecology has in its subject matter

and various approaches demonstrated the need for, and value of, such eclectic combinations.

However there are two critical areas where political ecology remains underdeveloped. One area concerns a historical rural and agrarian bias; the other concerns theorizations of structure-agency relations and the production of society.

### Rural Bias

The vast majority of political ecology research has taken place in a rural setting, mainly examining environmental and social aspects of third world agrarian and pastoral contexts. The continuing bias toward rural agrarian societies and systems, and towards productive land (as opposed to other resources) is illustrated in the proliferation of political ecology research on topics of land access, the politics of property rights or property regimes, production systems and rural production for export (Bryant and Bailey 1997:192). This historical bias stems partly from early influences of cultural ecology and development geography, which predominantly focused upon agrarian and pastoral societies, rural property regimes and third world rural production systems. A paucity of critical and political influences within urban ecology may also be a factor. Whatever the cause, cities and urbanization have been neglected areas of concern. Beyond a few noteworthy efforts (Douglass 1992, Pezzoli 1993, Swyngedouw 1997) urban political ecology studies remain almost nonexistent. Much more could be done to widen the scope of political ecology research to include micro-level urban-environmental relations, the

role of various urban groups and settings in the globalization of economies and environmental transformations, and refined conceptualizations of the rural-urban nexus.

Such studies will also serve as a needed counterbalance to mainstream urban environmental management studies which typically adopt a technocratic and a-political approach. These seek the 'rational' management of the environment through technical and physical means – involving solutions which co-exist with existing social and political structures. A political ecology approach allows for a broader analysis of urban environmental problems linking physical, social, economic and political conditions across multiple spatial levels. As described by Harvey (1993:25):

..all economic projects..are simultaneously political-economic projects.. and vice-versa...Looking more closely at the way ecology and politics interrelate then become imperative if we are to get a better handle on how to approach environmental / ecological questions.

#### Theorizations of Society– Political Ecology and Local Practice

The search for a balanced view of society which is neither inherently determined by structure nor by the independent autonomous actions of rational actors has a long history, both within geography and outside of it (Buttimer 1978, Duncan 1985, Cloake, Philo & Sadler 1991:93, Ortner 1984). Yet, mainly due to the early influence of structural Marxism, much of political ecology research has in its studies of practice tended to disregard relationships between structure and agency. There has thus been a historical neglect of micro-level action and micro-politics in political ecology (Moore 1993:381, Black 1990, Neumann 1992:86). Recently, studies have begun to fill this gap,

incorporating, for example, theories of conflict, theories of networks and social movements, theories of power relations, poststructuralist views, structuration theory and postmodern theory within investigations of environmental change. Yet far more work needs to be done to ‘move toward placing the workings of civil society on a par with those of larger economic and political forces’ (Peet and Watts 1996:34). Such theoretical developments will be particularly important for future political ecology research on urban settings; where diversity and complex networks of social and material relations are the norm. The present study employs concepts of structure and agency from social theorist Pierre Bourdieu to frame an overall understanding of social relations at the neighborhood-level. Balancing this, a household-based model of social organization, and an engagement with network theory provide additional means of thinking about the range of micro-level actions to manage the environment as carried out by households and groups.

## **THEORIZING SOCIETY AND COLLECTIVE ACTION**

### ***Bourdieu’s Model of Practice***

The works of sociologist Pierre Bourdieu are heterogeneous and extensive, encompassing the overlapping areas of socio-dynamics, political economy and ethnomethodology. He is perhaps best known for his ideas regarding the constitution of the individual and individual agency, the mode and reproduction of social ‘structures’ and how practices come into being which enforce a particular order and a particular vision of

social reality. The present work draws from a limited segment of these writings, namely Bourdieu's ideas on *practice* and his perspectives on ethnographic research.

At the outset it should be pointed out that Bourdieu's theories are synthetic and anti-foundational, juxtaposing concepts from Marx (objectivism, materialism, capital, class and class conflict, mis-recognition), Weber (subjectivism, nominalism, symbolic power, lifestyle, status groups) and Durkheim (objectivism, societal differentiation, fields of struggle, symbolic systems) without adhering firmly to any single philosophical model or area of thought. His work combines the concerns of modernist social research regarding the regulation of social interaction, with postmodern concerns regarding the social construction of identity.

Bourdieu does not consider his work as 'theory' but rather as 'correctives' to opposing viewpoints (mainly subjectivist and objectivist forms of knowledge) and as ethnomethodology. His (meta)theoretical concepts for understanding contextual relations of power and social activity at various levels are intended as heuristic devices for the study of the social world rather than indicators of specific empirical phenomena or building blocks of systematic theory. Recognizing that local action is taking place in a globalizing context via dynamic and interconnected spheres of culture and influence, Bourdieu advises the researcher to first 'go and see' (Bourdieu 1998:34), and then employ the tools as befit the context. Bourdieu sees his occupation as one of providing conceptual tools and research findings that can be utilized by political activists in various struggles against domination. Put another way, Bourdieu views the research acts of social scientists as fundamentally political acts (Swartz 1997:261, Waquant, 1992).

### Social Actors and Social Structures

Bourdieu offers the following perspective on human agency and societal life:

..people are neither fully autonomous actors nor are they helpless subjects automatically 'programmed' to follow rules or structures.

Bourdieu's concept of practice (everyday action) conceives of structure and agency in a dialectical, dependent relationship:

*There is a dialectic of objective structures and incorporated structures which operates in every practical action (Bourdieu 1980:35).*

And,

Practices can have other principles than mechanical causes or conscious ends and can obey an economic logic without obeying narrowly economic interests. There is an economy of practices, a reason immanent in practices, whose 'origin' lies neither in the 'decisions' of reason understood as rational calculation nor in the determinations of mechanisms external to and superior to the agents (Bourdieu 1980:50).

Bourdieu foregrounds this theory with a discussion of subjectivism and objectivism – portraying them as artificial oppositions which divide the social sciences. Arguing that these modes of knowledge are equally indispensable, he urges one to:

...move beyond existing antagonisms to make possible both a reflexive return to the subjective experience of the world and also the objectification of the objective conditions of that experience (Bourdieu 1977:40).

People are structured by their situation resulting in what Bourdieu calls a '*habitus*' or set of 'structural dispositions' (Bourdieu 1980:53). Bourdieu proposes that structuring elements of people's lifeworlds are mainly 'unthought' categories with actors already embedded in a complex web of 'background practices' and meanings which largely remain unexamined and unknown. The 'system' within which the individual operates is thus not made up of discrete processes and parts but is seamless, made up of all the categories and practical elements. A few aspects may be more identifiable, such as those stemming from the state; while most are essentially invisible, involving for example, assimilated and / or constantly changing aspects such as 'tastes', or 'bodily inscribed' aspects of speech, movement and nuance. These basic ideas are the foundation upon which Bourdieu's socio-dynamics are constructed.

### Power and Domination

Bourdieu argues that people are bound to their *habitus* and thus disposed to reproduce the system. Bourdieu's view of the social world is a highly stratified and competitive one in which people struggle to maintain or enhance their relative standing within a hierarchically structured social space. Inequalities are rooted in unequal

*distributions* of types of 'capital'<sup>4</sup> (economic, cultural, social and symbolic) and the *fields* of power associated with them (Bourdieu 1985). Again, most of this competition for power, occurs at the level of sub-conscious or 'doxic', taken for granted knowledge.

Further, the viewpoint of dominant groups is imposed and maintained through positioning – i.e. as those who can more readily access and benefit from the system. These are the ones who can construct official languages and official cultures, and make them appear to be 'natural', 'normal' and 'given'. In this way, powerful groups maintain their own authority and power in society. This is how spheres of power are self-reproducing.

Every established order tends to produce...the naturalization of its own arbitrariness  
(Bourdieu 1977:164).

The reproduction of the relations of domination may take a form of symbolic power which replaces overt violence. Perpetuation of such representations of legitimacy Bourdieu calls 'symbolic violence' because the dominated accept as legitimate their own condition of domination. Nonetheless symbolic power is a legitimating power that entails the consent of both the dominant and the dominated. Bourdieu describes symbolic power as 'worldmaking power' because it involves 'the capacity to impose a legitimate vision of the social world and its divisions' (1994:13). Because symbolic power

---

<sup>4</sup> Bourdieu's generalized conception of capital represents a reworking of Marx's definition by extending its meaning beyond simply the capacity to command labor. Here, *capital* implies the command and mobilization of other sorts of action other than labor.

legitimizes existing economic and political relations, it contributes to the intergenerational reproduction of in-egalitarian social relations.

Further, Bourdieu asserts, the *only* way that relations of domination can be set up, maintained or restored is by disguising ('transfiguring, euphemizing') their true nature so that a pattern of misrecognition continues. Therefore, relations of domination self-destruct (or are eroded or transformed) when their 'true nature' is revealed or their fiction not maintained. Either way, the '*unthinkable becomes thinkable*'. How do these relations become transparent? According to Bourdieu this happens constantly in small ways:

..through social formations.. relations of domination are made, unmade and remade in and through personal interactions (1988:13).

And:

The relationship between distributions and representations is both the product and the stake of a permanent struggle between those who, because of the position they occupy within the distributions have an interest in subverting them by modifying the classifications in which they are expressed and legitimated, and those who have an interest in perpetuating misrecognition, an alienated cognition that looks at the world through categories the world imposes and apprehends the social world as a natural world...Each state of the social world is thus no more than a temporary equilibrium, a moment in the dynamics through which the adjustment between distributions and incorporated or institutionalized classifications is constantly broken and restored. The

struggle which is the very principle of the distributions is inextricably a struggle to appropriate rare goods and a struggle to impose the legitimate way of perceiving the power relations manifested by the distributions, a representation which, through its own efficacy can help to perpetuate or subvert these power relations (1980:141).

Further,

What is struggled over are not ideas as discursively redeemable validity claims, but the background assumptions (aesthetics, taste categories) which are the basis of rational speech acts (1980:35)

In other words, what is mainly being struggled over or negotiated is not ideology, but various habits and shared meanings that are the ontological underpinnings of ideology. Thus, the social world is an ongoing assortment of individual and collective struggles aimed at conserving or transforming 'reality', but not usually in a conscious or organized manner. In addition to small everyday actions, weaker actors may also operate knowingly and deliberately via sabotage, and other group or individual attempts to subvert the activities of the powerful and thus erode legitimacy. However, Bourdieu believes the scope of such strategies remain seriously constrained, as:

...resistant objectified institutional mechanisms such as the 'self-regulating' market, educational system or the legal apparatus remain dominant (1980:135).

While we may aim to 'consciously' contest underlying domination by structures, we nonetheless remain a part of them and reproduce them. We have '...internalized a set of opportunities' and we are 'part of this matrix' (Bourdieu 1988). Thus challenges to power must remain extremely difficult, largely due to difficulties in identifying and communicating social structures themselves.

However, clearly Bourdieu wants us to try. Although his overall position on societal emancipation remains generally pessimistic, a basic theme and general project emerging from his recent works is an widespread increase in rational awareness of conditions determining social life and behavior, awareness which Bourdieu believes can in the long run result in enhanced possibilities for human freedom (Bourdieu and Wacquant 1992). Increases in such consciousness, Bourdieu believes, can be facilitated. He spends considerable time addressing the liberatory potential of intelligentsia and other (relatively) empowered groups in shifting power and lessening domination. Bourdieu sees the researcher and research as occupying one of three key 'junctures' where the dominant social hierarchies which reproduce the point of view of dominant parties may be subverted or resisted. Researchers and social scientists may do so by revealing mechanisms that create or reproduce the dominant belief or group.<sup>5</sup> Exposure of power mechanisms may serve to diminish their power as determining forces (Bourdieu 1977:168). Two additional sites are found in crises or contradictions of consumption, and in the influence of arts and culture. The dominant economic model, which is based upon market consumerism, may involve a self-destructive element as its legitimacy rests

upon experience meeting expectation, and in many places this appears not to be happening. Artistic and literary texts (and artists and other influential people) may further serve as the conduit for conveying views from 'outside', and thereby for subverting the authority of the dominant view/culture. Through these channels, powerful actors and systems of domination may increasingly be subject to 'fissions', where individuals, communities, NGOs and other less powerful actors may further intervene and mechanisms of control may be further eroded (Bourdieu 1999:45).

### Bourdieu's Ethnomethodology

Bourdieu's ethnographic research process, which he applies to both precapitalist and capitalist societies, involves examination by the researcher of power mechanisms that *create or reproduce the particular setting*. How does one examine dynamic, non-linear systems such as these, particularly when one is also bound to these systems? Here Bourdieu insists on the value of both subjective and objective forms of knowledge, and espouses a reflexive method (Bourdieu and Wacquant 1992). His ethnomethodology<sup>6</sup> (1994:130) entails the following components:

- (1) Objective exposure of invisible (objective) determining relations of which the agent is often unaware;

---

<sup>5</sup> Strategically choose research topics based upon the extent to which the scientific investigation of a situation will have some political impact.

<sup>6</sup> Via a somewhat different route, Peet and Watts (1996: 35) have arrived at a similar research agenda. Their key areas of mediations to be addressed in research also include emancipatory efforts by the researcher.

(2) Retrieval of subjective perceptions or experience, including a focus on the active making of collective groups including ‘classes’,<sup>7</sup> and

(3) A second-order historical construction of the spaces from which perceptions and perspectives arise.

Overlapping inquiry at multiple spatial levels in the present work examines international, national, provincial and local aspects of stratified social systems as well as the physical conditions and (conscious and otherwise) everyday actions of local people to manage the urban environment.

### Bourdieu’s Research

Bourdieu’s own research encompasses a broad range of subjects and concerns. Most of his work is focused upon dominant groups in society – notably the French ruling elite, intelligentsia, writers and artists – although his earliest studies were of Algerian peasants, and in recent years he has focused on working class groups in Northern France. In these and other research endeavors he has developed various theories including those on action, knowledge, art, language, and mind-body connections. Together these theories reflect an overall world view where stratified social systems of hierarchy and domination reproduce intergenerationally, without serious resistance or the conscious recognition of those perpetuating them.

---

<sup>7</sup> This approach stresses the (class) habitus of the thinker. Bourdieu sees class as a mode through which society organizes people’s connection to the worlds of politics *and* production (as compared with Marx’s economic concept based upon labor and production imperatives).

Bourdieu began to develop his theory of practice in the 1950s in his ethnographic studies of Algerian society. His investigations of Kabyle peasant groups constituted structural (anthropological) analyses of culture, but also ventured into (political and sociological) analyses of cultural transition from precapitalist to capitalist societal forms, and patterns of domination associated with modernity. *The Algerians* (1961), describes material and symbolic dimensions of Kabyle society but also how French colonialism and forced modernization resulted in the end of the existing social order and the balance between urban and rural existence. Forced resettlement, dislocation, the loss of fertile land (representing sustenance, lifestyle and wealth) and the rapid introduction of a money economy (which replaced a gift economy and destroyed the system of symbolic capital accumulation based upon 'honor') subsequently led to rapid proletarianization, and great numbers of urban unemployed. Bourdieu investigated how during this period of change peasants responded to new conditions via dispositions originally shaped by the traditional socio-economic order. He concluded that patterns of adaptation thus entailed a filtering of the new through these existing dispositions.

Returning later to the case of the Kabyle in *Outline of a Theory of Practice* (1977) and the *Logic of Practice* (1980), Bourdieu refined his concepts of *habitus* and fields to depict how action is a culturally mediated response to structural constraints and changing environments. Bourdieu's views that (1) societies are organized around the accumulation of (mainly symbolic) capital or the quest for distinction, and (2) that the embodiment of *habitus* occurs in all areas of societal life (for example as parallel styles of action in areas of diet, marriage, family planning, ways of dress, or preferred sports) are also developed

in his subsequent studies of capitalist society. *Distinction* (1984) relates French social class to lifestyle and consumption patterns. Here, Bourdieu asserts that class differentiation depends on three factors: total volume of capital, composition of capital and social trajectory. Differences in the total volume of accumulated capital mainly determine class divisions, while intraclass divisions are determined by the composition of capital. Differentiation in this sense occurs in the upper classes, but generally does not take place in the lower dominated class. Bourdieu addresses how *habitus* accounts for group (class) differences across a broad range of aesthetic tastes and lifestyles. He identifies four distinct French class *habitus*, and describes each along a range of lifestyle indicators.

Bourdieu's studies of 'advanced' societies also included numerous considerations of the educational field, including the influence of school in the development of 'mental habits' of French schoolchildren, and the university intellectual as diffuser of knowledge and player in the reproduction of university and dominant culture. In *Distinction*, school systems are considered as institutional context where the enculturation of children of all groups and classes occurs. However, even as more children are instilled with the desire to pursue educational capital, in the system, the number of winners is limited. School as bearer of culture also instills a belief in meritocracy – a belief that leads to the 'self exclusion of the excluded.' (Bourdieu and Passeron 1964:35).

Investigating the sociology of the academic profession, *Homo Academicus* (1988) investigates the underlying structural forces shaping academic culture and academic practice in France. Bourdieu casts academics as individuals with high cultural capital.

(Bourdieu 1989) engaged in a dynamic arena of struggle where political divisions between various players having different roles in the (re)production of knowledge and the university are played out, but where nonetheless the interests of dominant groups are preserved. The access to various volumes and types of power internally differentiates the intelligentsia.

In *The Weight of the World: Social Suffering in Contemporary Society* (1999), Bourdieu's focus shifts from the dominant classes to the condition of lower middle classes in a deindustrializing region of France. Through interviews, this work investigates the effects of changing social relations of production, unfolding various types of 'little miseries' (social problems) that have been created, from dissatisfactions to open social conflict, under conditions of acute material deprivation and poor health.

Reviewing these works of Bourdieu on practice reveals a variable usage of the *habitus* concept. For example, in the works described above Bourdieu treats both French working ('dominated') class *habitus* and the Kabyle *habitus* broadly as unitary *habitus*; whereas he posits multiple class *habitus* among dominant classes of 'advanced' societies. This difference likely stems from Bourdieu's class analysis, as described above, which conceptualizes the former groups as having lifestyles highly constrained by primary necessities and excluded from the pursuit of most types of capital, thus not much differentiated. However at other times, Bourdieu appears to use the term rather more broadly or narrowly depending upon the specific social effects he wishes to emphasize.

Swartz (1997:109) describes this limitation of the *habitus* concept:

Habitus suggests that there may be an underlying connection or ‘common imprint’ across a broad sweep of different types of behavior...However this very appealing conceptual versatility sometimes renders ambiguous just that which the concept actually designates empirically.

This ambiguity presents certain dilemmas of identification and interpretation for a researcher studying a particular group of people. Casting the net too wide – or too narrowly – might mean overlooking important aspects of history and diversity driving local social dynamics. Another question concerns the degree of heterogeneity encountered in urban centers. The thrust of Bourdieu’s argument is to stress the common underlying unity of all practices as stemming from a few underlying master dispositions. This (mostly) works well in his own research which has dealt with relatively homogenous cultures and groups. But how does one approach the identification of *habitus* under conditions of change and divers

Mearns (1996) encounters these dilemmas in his investigations of *habitus* among Ambonese Christians in the neighborhood of Silale. This indigenous group has resided in Silale for a period of several centuries, a condition which might suggest the development of shared patterns of activity and ‘worldview’. Yet, Mearns encounters no such common set of predispositions, but instead multiple class and other divisions within the group, which is itself embedded within a larger urban society characterized by great heterogeneity in origins, language, occupation, education, symbolic capital, and family status. The considerable internal differentiation of urban Ambonese Christians and

absence of an identifiable underlying master pattern – leads Mearns (1996:14) to conclude that there is likely ‘no single overarching (Christian Ambonese) habitus’.

Questions of identification and interpretation of *habitus* are likely to be continuing concerns in researching the urban setting, which in many places is marked by diverse populations and rapid change, and where a multitude of global and national as well as local influences are exerted. Nor are these sticky questions attenuated by Bourdieu’s passing suggestion that in certain crisis situations, people do not necessarily operate per the embedded dispositions of *habitus* but instead action is impelled by immediate interests and the influence of larger fields of power (Bourdieu 1990:182). Questions of conceptualizing *habitus* ‘on the ground’ at the metropolitan scale and of unraveling the impacts of crisis on social relations are revisited in Chapter 5, in conjunction with the analysis of micro-level social and environmental conditions in neighborhoods of Ambon.

### ***Collective Arrangements to Manage the Urban Environment***

Bourdieu’s work aptly illustrates how conflict and competition for power and ‘capital’ are inherent to everyday life, and how an individual’s identity and actions are formed and transformed by multiple sources and mechanisms of power. Yet, on the subjects of collaborative action and cooperation he offers few insights. This is because, beyond *habitus*, Bourdieu does not really consider other organizing modes of conduct. Moreover he only considers acts of resistance to domination and the bringing about of

needed social change as an enterprise of individuals (mainly those intelligentsia and others with high cultural capital), not as one of organized groups.

Nevertheless, social research has repeatedly confirmed that local practice in the urban setting entails myriad categories of consciously organized and innovative efforts for collective survival, including efforts to muster cooperation and mitigate conflict. Thus, here Bourdieu's theory of the constitution of society and individual agency is appended with an application of network theory which entails a view of the household as a basic organizing unit of social life, and which regards group forming activities as indicators of social networks. While keeping in mind that local relations are never wholly without conflict (and never are unaffected by external influences or the underlying master dispositions of habitus), the present study simultaneously aims to examine the various micro-level cooperative and other arrangements for habitat management as they occur within and among households and groups. It further proposes to investigate the various forces and influences which may condition (or hinge upon) such group agency.

### Network Theory

Network theory consists of an array of perspectives within the field called social studies of science and technology which possess at their core a view of networks as fundamental analytical units. *Networks* here refers to technological relations, economic forms, political structures and social structures that are interwoven to make up complex sets of association. The production of networks intersects, and proceeds simultaneously

with, processes of production and distribution of wealth, status and power. Positions in a network are far from equal in consequence for the actors involved.

Network theories address these concerns from various perspectives - from macro level 'globalization' analyses such as Manuel Castells' (1996) 'Network Society' which addresses processes and ramifications of the intensification of linkages associated with global processes of capitalist development, to meso- and micro-level investigations of shifts in the relative position of local actors within regional and local networks (Fortman 1995, Busch and Arunas 1997, Whatmore and Thorne 1997).

In these latter works, the influence of actor-network theory has been considerable (Murdoch 1998). A key characteristic of actor-network theory is that it concerns itself with the *heterogeneity* of networks; how social and material processes (subjects, objects and relations) become seamlessly entwined within these complex sets of associations (Lynch and Woolgar 1990, Callon 1992, Law 1992, Latour, 1993). This leads to an interest in 'network topologies' – with the ways that spaces<sup>8</sup> emerge as socio-material relations are arranged into orders and hierarchies. Both human actors and nonhuman participants are equally 'actants'<sup>9</sup> or 'functors' in the network. Actor network theory sees *stable sets of relations or associations* as the means by which the world is both built

---

<sup>8</sup> This idea of spatiality is quite different from the Euclidean view. Here, elements retain their spatial integrity owing to their position in a set of links or relations.

<sup>9</sup> Drawing from Griemas' semiotics (see Griemas & Courtes 1982), Latour (1996) argues for a 'heterogeneity of actants' in the analysis of social practices. By this he means a consciously symmetrical treatment of the roles of human actors and material artifacts; and a definition of agency in which all action occurs within networks of humans and their tools, artifacts and technologies.

and stratified.<sup>10</sup> The properties of the collective are unlike those of any single individual member or sum of the individuals. The non-linear and topological emphases of network theory can help us understand how Bourdieu's 'temporary equilibrium' model of society is made material, what forms group action takes, and how forces which in one situation undermine and restrain social life may also create new and unanticipated forms of cohesion in another.

Various perspectives within actor network theory explore the specificities and materialities of group arrangement-making (decisionmaking). *Translation* is the tool used in actor network theory to investigate connectivity, centers of control and how local behaviors can be both prescribed and proscribed from afar (Law, 1999). Translation refers to the processes of negotiation, representation, and displacement which establish relations between actors, entities and places. The creation of an actor-network consists of three major stages: *problematization*, *interessment* and *enrollment* (Callon 1991). Actors within an organization may be involved in different processes of translation, each having unique characteristics and outcomes. In *problematization*, an actor defines identities and interests of other actors that are aligned with its own interests, and establishes itself as an *obligatory passage point*. This in turn refers to a situation where a focal actor identifies a common situation which must occur in order for all the actors' interests to be satisfied. *Interessment* involves an act of legitimizing, where others are convinced to accept the definition of the focal actor. Latour (1988) further asserts that:

---

<sup>10</sup> Actors do things in association with heterogeneous others in sets of stable relations – relations which allow for the transmission of action. Thus the term actor-network, a term John Law (1999) claims is 'intentionally oxymoronic'. Actor-networks are both networks and points.

'No actant is so weak that it cannot enlist another.'

Enrollment is the moment that an actor accepts the interests as defined by the focal actor (Aikrich 1992, Watts, 1983). The process of actor buy-in to collective interests and action has also been depicted as a process of assimilating stories and/or texts and establishing these as valid (Fortmann 1995, Stone 1997). Enrollment occurs variously via relations of accord and conformity, as well as through conflict and co-optation, and operates within a shifting milieu of opportunities and constraints.

Understanding of organizing behavior underlying collective action has been greatly enhanced by this body of theory. Nevertheless its historical technological and systematic emphases (and studies involving controlled environments and long-range monitoring) render it only of limited application in complex urban contexts involving heterogenous, changing populations and environments. Identification of network boundaries, membership and composition, not to mention qualitative and quantitative measurement of various intersecting influences over time, pose serious problems for data acquisition in the setting of Ambon City. Consequently, the present research is considered to be informed by network theory in its broadest sense, that is, as a model for investigating the specific social forms and social structures which can be identified as producing actions to manage the urban environment. Here, the investigation of social networks is conducted via inventories and observations of households and groups, their internal social and material processes and relations, and links with wider social, political,

cultural, economic and technological relations and forces, rather than through detailed analyses of individual actors and their behaviors and relations.

### *The Household as a Fundamental Unit of Analysis*

In the investigation of strategies for environmental management in Ambon's neighborhoods, the household has been designated as a primary unit of analysis due to its recognized role as an organizing unit for survival in the city. The term 'household' is often used unproblematically, yet there are numerous ways in which these multi-dimensional entities have been defined: by makeup and structure (for example as co-residential units, with kinship or other family relationships, as possessing membership boundaries); by function (as decisionmaking, income pooling, shared labor, or shared consumption unit); and by other categorizations (Guyer and Peters 1987, Heywood 1990, Bender 1967, Harris 1981). However, at the same time, it has been amply demonstrated that these household structures and functional relationships to the outside world change constantly over time as personal, economic and other conditions change (Jellinek 1991, Moser 1996, Schmink 1984, Evers and Korff 1986). As such, in the study of collective action *vis a vis* the environment, employing a view of the household as a basic networking unit appears a logical choice. The household is a site of stable relations (durability) which allows for the transmission of action. Yet at the same time it undergoes constant change and transformation in its internal and external relations as individuals within it maintain relations with heterogeneous others (other households and individuals, employers and the state are some examples) within developing networks.

Thus, a network model allows us to view the household concurrently as the fundamental unit of environmental management (Douglass 1998:123), a primary site of consumption, decisionmaking and obligation, a site of economic production and social reproduction (Friedmann 1992:63) and as a site where relations of reciprocity, cooperation and altruism regularly occur (Folbre 1986).

***Summary: The Study of Environmental Management in Ambon***

In this investigation, political ecology, Bourdieu's theory of practice and a general perspective on social networks are combined to examine the social phenomenon of urban habitat management in neighborhoods of Ambon, Indonesia. Together these theoretical components constitute a particular program and orientation as regards the study of social-cultural-political life; providing the logic and direction by which research questions are transformed into a research design.

Political ecology is guided by assumptions about development, politics, economic structures and the ability to render systems environmentally sustainable. First and foremost, social justice, material equity and environmental integrity are all seen as intertwined. A political ecology approach recognizes that urbanization and daily life in the city are shaped not only by processes associated with a global capitalist economy, but also by national, local and other influences and processes. Habitat management is seen as embedded in political and economic contexts at all the various levels. Thus political ecology's solutions to (socio-) environmental problems will also require responses at all levels. Bourdieu's theory brings to this framework both an actor-based focus and a

heuristic for thinking about the constitution of society via the playing out of powerful hierarchical forces. Bourdieu's ethnographic process also provides a guide for investigating the conditions of existence as a product of durable yet evolving social relations and processes.

That Bourdieu's work excludes considerations of certain key aspects of contemporary urban life such as multiple organizing modes and cooperative relations necessitates the incorporation of additional perspectives on networks into the overall analysis. Social relations are not simply composed of the playing out of powerful forces upon individuals, but are enmeshed in a complex of developing network beyond the scale of the individual with distributions across larger material systems longer time scales than those associated with individuals. Thus, here the actions of households and groups are considered as indicators of network formation.

Based on these areas of concern, the study's methodology (which is the subject of Chapter 3) can be said to address a three-part research agenda. The first area of the research agenda entails a examination of global, national and other political-economic forces and processes impinging on urbanization and environment in Ambon, expressed as dominant institutions, works and social structures. The second and third areas of the agenda involve, respectively, an investigation of micro-level social relations (including types and sources of organizational networking / linkages, and perceptions about the environment), and a general search for additional factors which may condition socio-environmental and collective action in the neighborhoods.

Investigations in these three areas can provide detailed accounts of the multitude of existing relations surrounding environmental conditions in Ambon at a single moment in time. The hope is that such an effort will provide insights into social-environmental relations in Ambon and result in a richer understanding of the complex, vibrant and strategic nature of every day life.

The following chapter provides the details of the study's methodology. After describing the rationale and lived experience of the research, the overall research design, research questions, types of methods, data types and analytical tools employed within the political ecology study are laid out.

## **CHAPTER 3**

### **METHODOLOGY**

#### **INTRODUCTION**

Moving now from the realm of theory to the research design, this chapter addresses the study's origins, questions, methods and lived experience. Beginning with the latter topic, the first of five sections describes the study's rationale and the experiences of the researcher. A second section reviews the research questions and propositions, and outlines the logic linking these to data collection methods. The third section discusses the details of the research design, which entails a case study strategy with multiple methods and multiple data types. A fourth section outlines the methods and components used within this strategy and the selection of sites. The final section describes the data analysis process, including coding, assembly, and interpretation.

#### **RATIONALE AND INFLUENCES**

The study of people's everyday lives involves the personal participation of the researcher, who 'filters' or 'interprets' the activities and responses of others in an attempt to illuminate the phenomenon at hand and promote understanding.

### ***Grounding Fieldwork – Interpretation***

A fundamental dilemma posed by naturalistic study is the dual role required of the researcher (Pile 1991, Bryman, 1988, Gilbert 1993). Maintaining the double role as both outsider and insider involves a difficult combination of relationship and separation, of flip-flopping between commitment and disengagement. At one level, the researcher role itself confirms one's position as outsider, study architect and observer, creating distance, posing limits to inclusion in community life and hence to what one can learn about it. Yet this 'detached outsider' role can also be an aid in information gathering, as powerful and powerless groups alike may consider a researcher as 'neutral' or an ally. For example, the powerful may perceive a researcher as legitimizing their views and their dominant role; the powerless may regard an outsider as a means of publicizing their position to the outside world; and both groups may consider a researcher as a source of information, funds or other assistance.

Simultaneously, at another level, one becomes personally enmeshed in an everyday alien reality, hoping to experience other peoples' social realities (i.e. think, feel, and interact in similar ways) in order to understand them. The insider makes connections that reveal deeper understandings and forms special relationships that allow emotions and beliefs to surface. The insider also provides a confidential and sympathetic ear for gripes, worries and concerns of the 'researched'. Without such resonance, little of consequence can be said.

Ultimately, however, the goal is a *synthetic outcome* which transcends the experience of either extreme (Rowles 1975, Bourdieu 1980). On the ground, however,

the experience of detaching from and simultaneously living in this reality can be an unsettling one. Nevertheless, as Lederman (1990) points out, this tension may be a necessary one:

To the extent that our two worlds are distinct, our loyalties are divided, and we may feel compromised. But that is the price we pay for a unique voice.

The 'unique voice' may be the closest we can come to representing the reality of the other in his or her world, in offering ourselves as a medium of expression. Here, the inherent assumption is that this corresponds to something of a beneficial alliance. However, at the same time it is worth bearing in mind that such relationships always involve inherent inequalities of power – in other words, the contradictions between researcher and the researched will never be completely erased (Acker and Esseveld 1983).

Because much of the what and how of interpretive research are intersubjectively determined it is consequently necessary to examine the effects of the researcher's own background, personality, and interpretative predisposition upon the fieldwork and upon research outcomes (Bourdieu 1984, Punch 1986). Bourdieu insists that the researcher must reflexively monitor her own social understanding *vis-a-vis* that of the 'researched' in terms of her influence on the process and must remain open to being changed by the process, as all involved with the study and its results will have their awareness changed. In other words, while remaining maximally objective, the research should remain self-conscious, open to scrutiny and a continuous learning process.

### ***Background Influences***

As Berger (1977:8) says, 'To look is an act of choice'. Our 'way of seeing' is reflected in our choice of subject and the way in which we portray it. My own interest in the relationship between environmental problems and local initiative evolved through successive engagements with development studies and environmental studies in the 1980s, and social geography, urban and regional planning and political economy in the 1990s. Out of these experiences arose both an interest in the area of political ecology and heightened concern for the plight of expanding global populations of urban poor struggling for survival amidst degraded environmental conditions. As an environmental planner in Hawaii, I also developed a particular interest in the social and environmental aspects of urbanization in island settings.

In 1993 I spent four months in Java attending university courses in Indonesian culture and language. During this stay I toured over a dozen cities of Indonesia, among them Ambon City. A small, remote island center located in a region of great marine biodiversity, Ambon was experiencing serious environmental side effects associated with several decades of rapid urbanization. The environmental and cultural setting of Ambon (the latter consisting of a diverse mix of Melanesians, Indonesians and other groups) presented an intriguing research opportunity. City officials, expressing concerns about growing populations and the environment, encouraged the idea of research and suggested several neighborhoods for study

My research in Ambon, a little over one year in aggregate, consisted of three trips between 1995 and 1997. On the first two trips I stayed for about a month each time, observing in a general way, taking photographs, acquainting myself with the city, the neighborhoods and the people. I interviewed university staff, government officials and local residents on environmental topics, and spent as much time as I could observing daily life in the city's core neighborhoods and, through informal surveying, assessing the interest of these communities in environmental improvement activities.

During a second visit, I met with a faculty member at the local Pattimura University to design a joint investigation of neighborhood environmental management. A plan was devised, one that would support existing environmental management initiatives and at the same time include residents as co-participants in the research. I saw myself working together with my new neighbors, supporting them in their efforts to improve their surroundings, and having them educate me in the process (Richer 1988). Research sites were targeted – poor neighborhoods in Ambon's central urban area where neighborhood leaders supported the idea of the research and ‘cooperative’ projects were said to have succeeded. I then obtained permission from the director of the foreign research branch of Ambon's Pattimura University, who offered sponsorship via the National Institute of Sciences, Indonesia's main research institution. I also obtained letters of permission from neighborhood and sub-district officials, sorted out funding, honed my methodology, and awaited the approval of my research visa.

### ***Field Research***

Of course the reality of fieldwork was nothing like I what had planned. The bulk of the field research was conducted between July 1997 and April 1998, a time of economic crisis and political turmoil in Indonesia. Inflation was on the rise, and millions were sliding into poverty.

Immediately after I arrived things bogged down horribly. My university contact was missing, and several trips to the university later I learned he had obtained a position as a consultant on a government project. Likewise, once-enthusiastic neighborhood officials had become reticent about involvement in university research schemes, their attention now focused on the task of running basic programs with ever-shrinking operating budgets.

Hopes for linking together university and neighborhood residents in a joint research process quashed, I scaled back the study to a solo examination of existing conditions, and household and group practices of environmental management. The revised research strategy, which consisted of a program of household surveys, key informant interviews and participant observation, aimed to identify household and group management practices in use and attempt to discover key factors which enabled and constrained them. I hired two newly graduated university students to assist with these tasks, and found lodging with a family in one of the study neighborhoods.

### Bureaucracy and Gatekeeping

Although I held letters of permission from higher-ups to travel and research freely in the two neighborhoods of Ambon (and was already residing in one of them) the reality of research entry proved a complex and time-consuming bureaucratic process. First, official rules dictated that introductions and permission letters were to be obtained from each of four successively higher levels of government and presented to the neighborhood heads. Each successive level demanded a chain of formal introduction and documentation, a process which took many days.

Yet, this was trifling compared with the protracted process which followed of negotiating the internal neighborhood administrative structure. After introducing myself to the neighborhood heads, a further series of formal introductions down the chain of command was required. First, introductions to *kepala* (heads) of all 20 RWs (*Rukun Warga*- small neighborhood sub-units) were in order. These *kepala RW* in turn were expected to introduce me to the 60 heads of the smaller RTs (*Rukun Tetangga*). This process proved exasperating for all involved. Nearly all these unpaid officials held jobs outside the neighborhood, and few had telephones, so locating them was often a matter of chance. Countless hours were spent in search of these functionaries whose response to my presence and stated purpose was often weary disinterest. A few harbored animosities among themselves, resulting in further bottlenecks due to 'no-shows', stall tactics and other non-cooperation. Others, however, received me enthusiastically, offered support and assistance, and consented to interviews.

Once these local courtesy calls were concluded for both neighborhoods, the research activities began to flow more smoothly. The challenges that surfaced after this period arose more from economic change, personal limitations and interpretive aspects than from bureaucratic red tape.

### The Role of Language

In order to enter the local world and obtain a grasp of action in the setting, the researcher first has to learn the language in use; not only jargon and dialect but also social meanings and unfamiliar uses of familiar words. Although I came to the setting with proficiency in two Indonesian languages, research required a continuing process of 'local' language learning. I gained a great amount of this type of knowledge from children, the premium teachers of slang and nuance. I also relied heavily upon research assistants and key informants to provide cultural information and translations of vernacular. I believe such knowledge greatly enhanced everyday communications and improved the quantity and quality of information gathered over the course of the study.

In conducting door-to-door surveys, residents were initially surprised to see a white western woman, but were (usually) put at ease by an initial self-introduction in Indonesian. My entry into local homes was also facilitated by the presence of two local assistants who alternately accompanied me on forays to all but the most remote sites. Both were university graduates, which carried elevated status, and both were females, which I believe resulted in increased cooperation and participation of female residents. Ethnicity also played a role: one of my assistants was Ambonese; the other was of mixed

Sulawesi ancestry. This provided advantages not only in terms of relating to and communicating with locals (most of whom spoke Ambonese, Indonesian and a third 'mother tongue'), but also in terms of obtaining crucial background information on practices and beliefs of various ethnic groups.

Language strategies played an important role in interviewing. For the most part, I used a combination of the local Ambonese language, *Bahasa Ambon* (also known as Ambonese Malay) and *Bahasa Indonesia* (Indonesian), the official national language. My general strategy was to introduce myself in Indonesian, a more formal language considered to be socially 'neutral' in diverse multi-ethnic conditions. I would then ask if the person preferred to use *Bahasa Ambon* (Ambonese Malay), the *lingua franca* of the region since the 15th Century. In Ambon this language is more commonly used than Indonesian as a sort of street pidgin by all manner of groups. Many people felt more comfortable conversing in this 'informal' format, and I believe that despite its perceived 'crudeness', its use facilitated access to the community.

### Positioning

As a white middle-class American woman I brought my own values, behaviors and preconceived ideas to the research setting. I was raised in a liberal middle-class rural setting, where 'working class' values (practical knowledge, hands-on experience, self-reliance and hard work) were fused with middle-class expectations of higher education and advanced skills. As resources were often scarce, my family relied on livestock and garden for part of our sustenance. Later, while attending university, I held various blue-

and white-collar jobs to supplement my income. I believe these values and experiences helped me relate more easily with my neighbors in Ambon, who worked hard and spent innumerable hours maintaining their households – obtaining food and water, cooking, cleaning, and so forth – but who also maintained high hopes that their children would obtain university degrees and attain higher status jobs. I could also relate to what it is like to experience times of need. Of course, there were also major differences: I was far wealthier than many of my neighbors, accustomed to western comforts, and able to insulate myself from the worst social and environmental threats. As a westerner and an academic, I was relatively free to move among the various spaces of class, gender, education and ethnicity with few repercussions. As such I was clearly set apart from the people I was studying and from their way of life.

On a personal level, although I wanted to be part of the community and share the neighborhood people's experiences, I did not expect to be accepted as a member. I'd learned as a student in East Java that I was a stranger who occupied a marginal role in people's lives – a passing moment in an ongoing drama of everyday life in the neighborhood. I felt could never fully experience people's social reality but dedicated myself to sharing as much of it as possible. In Ambon, the achieved degree of familiarity actually exceeded my expectations. In spite of the relative brevity of the encounters and the preliminary nature of the contact involved, I felt that in many cases real relationships were forged. Overall, I believe I learned something about the neighborhoods' socialization processes, rules of behavior and dominant values, and I tried to remain flexible and live in accordance with these while I was there.

The fact that I was American and from Hawaii initially meant little to my neighbors, who automatically classified me as either *Belanda* (Dutch) or else generic *bule* (lit: 'bleached') person. Because I was Caucasian, I was also assumed to be a Christian, a distinction I downplayed and which fortunately was of little concern initially to my curious Muslim neighbors. Later on the Hawaii connection became a popular source of conversation among friends, as Ambon has parallel cultural traditions of food, music, dance, and aloha wear. Although Ambon maintains a small but constant foreign expatriate population, at first I was regarded as something of a conundrum in the neighborhoods. Later, after word of my purpose for being there spread, I was viewed (I think) less as a curiosity than as a potential resource. In time people accepted me, or at least became accustomed to my presence to the point where my daily walks around the neighborhood elicited no startled responses or hordes of shouting children at my heels.

Although my only real institutional attachment of any significance to the residents – the local university – was in reality nearly nonexistent, I was more or less automatically assumed to be working there. This 'affiliation' and being an 'educated' 'rich' westerner afforded me much privilege and access to the community. Many residents I approached were familiar with the idea of research as an obligatory activity of university academics, and readily consented to interviews. Academic affiliation also afforded easy entry to the offices of bureaucrats, church officials, NGOs and intelligentsia. Similarly, being single and a western academic gained me occasional 'male status' with access to some all-male activities such as fishing.

My status also marked me as a resource, and I was asked on occasion to write letters and act as liaison with bureaucrats or university staff on behalf of residents. Others asked for help in paying utility bills, medical bills, or school fees for their children, or requested contacts or sponsorship for jobs and/or immigration outside the country.

### Gender Issues

Being female likewise presented mixed opportunities and constraints. Most significantly, my gender facilitated my inclusion in certain sets of social relations which are normally closed to adult males. For example, it provided a distinct advantage when conducting door to door surveys, where a significant percentage of respondents were Muslim women; and in day-to-day dealings in the street and *pasar* where women prevail socially. On the other hand, being female in Indonesia also means that most of your time is spent with females. This is an inevitable outcome of a strong tradition of gender segregation which, although eroded somewhat in the urban realm, still extends to most spheres of adult interaction. Thus, being female also meant exclusion from many all-male practices such as mosque activities, drinking, and certain types of meetings. These conditions have obvious implications for research outcomes. During my stay, I learned *far more about females than males, and my results are therefore influenced accordingly.*

Sexism, while hardly unexpected, proved an obstacle at times. I attempted to minimize its incidence by projecting a professional image: dressing like a local bureaucrat and carrying notebooks and other trappings of the researcher. Nonetheless,

my status as an unmarried female over the age of 20 posed a puzzle to many – mostly men of course – who were constantly inquiring 'Where is your husband?'. Besides this, I encountered on a daily basis numerous other forms of sexism from mild paternalism to physical harassment. Most I was able to ignore, although my experiences resulted in avoidance or reduced interaction with certain groups and individuals. On a positive note, I feel that these experiences enhanced my awareness of power relationships, prejudice, and discrimination. I was also fortunate to have among my informants several non-sexist, open-minded males who provided balanced views and interpretations.

The longer I stayed in the neighborhood and the more frequently I visited certain households, the more I felt I was accepted by residents. Some who initially were reluctant to talk increasingly wanted to do so. Unlike my East Java experience, where social interactions were more subdued, ritualized and 'proper', relations among Ambon residents seemed from my perspective to be on the whole more frank, informal and animated. In fact, informants in Ambon told me on numerous occasions that it was considered acceptable to publicly express emotions including anger, elation or sadness, as well as to 'talk story' with a stranger. Often I was accosted in the *pasar* or street, by vendors offering up opinions with their onions, residents inviting me in to drink tea, students seeking English lessons, fishermen offering me a seat on an all-night fishing expedition – all situations less likely to be encountered by the (female) researcher in Java. To me, Ambon seemed a friendly if crowded place.<sup>1</sup> There was never a shortage of people to talk with. On an evening stroll to the end of the block I could easily observe

fifty or more people and spend an hour in conversations. Minor pleasantries exchanged in passing on an afternoon trek home could likewise turn into hours of *stori stori*, on the veranda, discussing market prices, child nutrition, medicinal herbs or a host of other subjects. Daily interactions with market vendors in the *pasar* paved the way for future interviews and acquainted me with fluctuating market prices. Other times I attended cultural events and festivities where neighbors congregated to talk and celebrate. Weddings, funerals, birthday parties and *sunat* (circumcision) celebrations, *haj* (Islamic pilgrimage) sendoff parties, and holiday events all provided ready opportunities to meet people and participate in the community.

#### A Changing Social Landscape

As I became more tied to the community and able to access it, I realized how the impending economic crisis was becoming a source of social stress and alienation. As the rupiah fell and prices of food and other household staples continued to rise, the tension in Ambon's streets and markets became nearly palpable. It also began to appear (although I could not empirically measure what I was seeing) that the neighborhood organizations and cooperative arrangements that I was studying were contracting. These changes posed *multiple dilemmas not only in terms of the questions I was investigating but more seriously in terms of ethics*. I sought the counsel of friends and informants regarding the suitability of a rich foreigner researching poor locals for her own personal gain during a

---

<sup>1</sup> About two thirds of Ambon's urban population is crammed into an area of approximately four square kilometers.

time of crisis. At the beginning of the study I had offered payments for interviews but this idea was rejected by informants and interviewees alike. As the economic crisis deepened, I renewed my offer of money; and this time I had a few takers. Meanwhile, residents continued to afford me generous amounts of time for surveys and interviews. This situation was *puzzling*, although I was grateful for it. At the same time, while I strove to express my appreciation and acknowledge the contribution of participants, somehow a simple 'thank you' seemed inadequate.

By contrast, as the economy continued its downward slide and city infrastructure and social services began to decline noticeably, the reception by bureaucrats changed markedly. Communications deteriorated and *rates of bureaucratic absenteeism soared*. Successive visits to offices of neighborhood officials met with waning enthusiasm and support, with more 'fee' requests for substantially less data.

By early 1998 the economic crisis had dragged much of Ambon's urban population below the poverty line and badly crippled government. I focused most of my efforts during this time on observations of the neighborhoods and *pasar*, and specifically on people's survival strategies. My research was abruptly cut short in April 1998, when local officials contacted me and urged my immediate departure. Less than a week after my departure, air transportation to and from Ambon was terminated in what would become a two-year shutdown. Four weeks later, President Suharto formally resigned in the midst of the worst recession and social conflict Indonesia had seen since the 1960s. In late 1998, ethnic and religious riots broke out in Ambon. Fighting, fire bombings of churches and mosques, and house-burnings occurred in all parts of the city, including

both of the study neighborhoods described in this work. Since then, waves of violence have continued to plague the island, with casualties numbering more than 500 to date. As of December 2000, at least 50,000 people had fled Ambon Island for other provinces (Kompas 2000), while more than 10,000 remained in refugee camps and shelters (Karaniya 2000). Today, with a weak economy showing only limited improvement, local government remains crippled and infrastructure and services deficient. According to informants, religious leaders maintain strong roles as peacekeepers and mediators, yet social relations in Ambon have not improved, and the island remains under military control. Responsibility for the ongoing violence is popularly attributed to factions of the Indonesian military, as well as to outside instigators – primarily mercenaries of the Muslim fundamentalist group *Laskar Jihad*.

## **RESEARCH QUESTIONS AND PROPOSITIONS**

Returning to the goals of the research, the research questions are broken down into their component parts in order to link these with appropriate data types and methods of data collection. The study's goal, propositions and questions as outlined in Chapter 1 are as follows:

### ***Research Goal***

The overall goal of the research is to better understand the social phenomenon of local (cooperative and other) self-management amid deteriorating urban environments.

***Main Research Questions:***

Question 1: What are the conditions of existence in each of the neighborhoods?

Question 2: What are the ways in which households and groups act (collaboratively and otherwise) to provide urban environmental amenities and services?

Question 3: Can specific factors which facilitate or constrain management activities be identified?

***Research Propositions / Assumptions***

A1. Previous research indicates that people manage their habitats (such as the household and neighborhood) and know much about them. At the same time the environment surrounds, shapes and influences local life. In other words, society and urban environments are mutually constituting.

A2. Social and environmental change occur within politicized environments. A constellation of factors operating at one level (local, national or international) may influence (positively or negatively) society and environment at another level.

### Logic Linking Data to Questions

There are political, institutional, economic, physical, and other factors occurring at various spatial levels which condition the ability of households and groups to manage the urban environment. Compilations of these sorts of data, and cross comparisons between them, should serve to identify key factors and provide insights about how environmental management actions are promoted or inhibited. These types of information can be accessed via a combination of self reports, documentary evidence, survey data and researcher observations of the everyday life space and actions of neighborhood residents.

From these primary questions and propositions are derived a set of detailed, secondary questions:

### Derivative Questions Guiding Data Collection

**Q1. What are the conditions of existence?**

- 1a. Economic (local, national, international)
- 1b. Physical (environment, health, safety, 'quality of life')
- 1c. Political (local, national, international)
- 1d. Social (local, national, international)

**Q2. What are the objective practices and arrangements employed by households and neighborhood groups to provide services and manage the urban environment in Ambon?**

- 2a. As reported by residents and key informants
- 2b. As observed by researcher
- 2c. As documented in government and other records

**Q3. Can specific factors which facilitate or constrain management activities be identified?**

- 3a. By residents themselves- statements
- 3b. By key informant statements
- 3c. By researcher observations
- 3d. As indicated in survey data

**Q4. What similarities and differences exist between the two study neighborhoods?**

## **CONCEPTUAL FRAMEWORK**

The methodology incorporates the central concerns of political ecology within a case study strategy.

### ***Political Ecology***

As described in Chapter 2, political ecology, is an area of study which entails a consideration of environmental degradation as inextricably tied to social processes in a dialectical relationship. Although political ecology has no predetermined methodology

*per se*, work in this tradition shares general concerns for political economy; an ecological view of humans as embedded in nature; and an ‘actor-based’ social theory which envisions society and the individual as mutually influencing and /or constituting. As incorporated into the present study, these constituent parts translate into three general areas of investigation that must be addressed. The first is a multi-level investigation of political economy. The second is a determination of environmental conditions, which in the urban context includes health and quality of life concerns as well as environmental systems and processes. Third is an examination of neighborhood social life – in particular the various groups, practices and relationships surrounding the day-to-day management of the environment. This includes an investigation into the underlying social forces which may condition such arrangements..

In short, this political ecology study involves gathering data in a variety of different subject areas (social, economic, political, etc.) and at a variety of spatial and temporal scales. It also examines both qualitative and quantitative aspects of social life and environment. We can immediately see then that political ecology not only lends itself to but *requires* the use of multiple methods. An investigation of local strategies for managing the urban environment and the constellation of relations surrounding it requires the bundling together of eclectic groups of methods as appropriate to the task (Kobayashi and Mackenzie 1989). A carefully designed and executed combination of methods provides a variety of data sources that can be called upon to assess the nature of particular phenomena as well as the motives and interests of actors. Using a combination of data sources, the researcher can cross-check and thereby validate observations as well as

claims based on those observations. This strategy is called the *triangulation* of sources (Patton 1981). Triangulation may involve any combination of the following to provide mutual confirmation: multiple observers, multiple theoretical perspectives, multiple sources of data and/or multiple methodologies. For the most part, however, researchers have viewed the main message of the idea as entailing more than one method of investigation and hence more than one type of data (Bryman 1988:131).

### ***The Case Study***

A case study strategy was chosen for the research as a means of preserving the complexity and detail of the neighborhood setting. Yin (1989:23) defines a case study as:

..an empirical inquiry that:

- investigates a contemporary phenomenon within its real life context; when
- the boundaries between phenomenon and context are not clearly evident;  
and in which
- multiple sources of evidence are used.

### **Advantages Of The Case Study As A Research Strategy**

The case study offers a fitting research strategy for the study of Ambon, given the linked environmental and social nature of inquiry – the ‘whole greater than the sum of its parts’ – the focus on contemporary phenomena, and the ethnographic orientation of the investigation. It allows for the study of multiple sites, using multiple tools of analysis, and for cross-comparison among these sites. Here a multiple case study approach is

employed, repeating the same array of research methods for two different neighborhoods of Ambon.

Feagin et al. (1991) succinctly summarize four additional benefits of the case study:

1. 'Observations and concepts about social action and social structures are grounded in natural settings, studied in detail;
2. A typically longer-range focus and multiple sources of information permit a more holistic study of complex social networks and of complexes of social action and social meaning;
3. It imparts the dimensions of time and history to the study of social life, thereby enabling the investigator to examine continuity and change in lifeworld patterns; and
4. It encourages and facilitates, in practice, theoretical innovation and generalization.'

In short, the case study strategy enables holistic, historically situated studies of everyday life which are both exploratory and richly descriptive, using multiple methods of data collection and a multitude of data types.

#### Drawbacks of the Case Study Strategy

Perhaps the most frequent criticism of the case study is that it does not allow for scientific generalization. In one sense this is true: the case study does not represent a sample. Just as scientific findings are rarely based on single experiments, generalization is not likely to derive from a single case study. Like experiments, however, case studies

may through replication (e.g., multiple cases, and / or multiple researchers) provide analytic (not statistical) generalization (Glaser and Strauss 1967). As Yin (1989:21) suggests:

..case studies, like experiments, are generalizable to theoretical propositions (about social processes) and not to populations or universes.

Other common criticisms of case studies are their long duration and their tendency to generate enormous amounts of seemingly undecipherable data. While some case studies are undeniably lengthy and voluminous, others are not. However certain benefits may be realized by longer- term case studies, including a rich data pool which preserves the totality of the social phenomenon being studied. The associated ‘messiness and unmanageability’ represent the flip side of obtaining holistic, detailed data on everyday life. By employing careful research design, monitoring potential sources of bias, and relying on multiple types of data in case studies, a type of ‘managed messiness’ may be achieved in which rigor is nonetheless maintained (Mitchell 1983).

#### Critique of Multiple Methods

The main difficulty faced in any study involving multiple methods is an increased number of potential validity threats stemming from the larger number and varying types of methods involved. These threats may arise at multiple stages of research. In the research design phase, special consideration must be given to conflicting ontological assumptions underlying different methods, and the researcher’s frame of reference

regarding these must be firmly established. Within the chosen frame, special care must then be taken to anticipate and eliminate sources of bias and error. In data collection, practical problems of interference and conflicting researcher roles need to be addressed.

## **METHODS AND COMPONENTS OF THE STUDY, AND THE SELECTION OF SITES**

### ***Selection of Methods and Components***

Five main methodological components were incorporated to address the research questions. In keeping with the case study and political ecology orientations, archival research, environmental surveys, neighborhood household surveys, key informant interviews, and participant observation were conducted in each of the two study neighborhoods. Table 3.1 links these components to the research questions. Each of the methodological components is described in detail below. First, however, the units of analysis and criteria for neighborhood site selection are briefly discussed.

### ***Units of Analysis***

While the field of enquiry was the neighborhoods, the units of analysis were neighborhoods, households and individuals. Within the case study frame, I compare two neighborhoods, assuming that these are appropriate and useful units of analysis. More precisely, however, the study compares household conditions, social relations and group organizing behavior between the two neighborhoods. In other words, I am assuming that

**Table 3.1. Research Questions and Methods Employed.**

| <b>RESEARCH QUESTION</b>  | <b>RESEARCH METHODS</b>  |
|---|--|
| <b>Q1. What are the conditions of existence?</b>  |  |
| 1a. Economic (local, national, international influences)  | Household survey, key informant interviews, archival research  |
| 1b. Physical (environment, health, safety, 'quality of life')   | Household survey, field survey, participant observation, archival research   |
| 1c. Political (local, national, international)  | Key informant interviews, archival research, participant observation   |
| 1d. Social (local, national, international)   | Key informant interviews, HH survey, archival research, participant observation.   |
| <b>Q2. What are the objective practices and arrangements employed by households and neighborhood groups ?</b> |  |
| 2a. As reported by residents and key informants   | HH survey, key informant interviews  |
| 2b. As observed by researcher   | Participant observation  |
| 2c. As documented in government and other records   | Archival research  |
| <b>Q3. What is the constellation of influences impinging on these actions?</b>                                |  |
| 3a. As identified by residents themselves- practical, strategic   | HH survey- statements  |
| 3b. As identified by key informants   | Key informant interviews, statements   |
| 3c. As observed by researcher; Identified 'systems of relations'  | Participant observation, archival research, cross tabulations of properties from all types of data (survey, observation, etc.) |

by studying households this is representative of a 'neighborhood'.

There are some problems associated with choosing this unit and making this assumption. A chief concern is that the neighborhood is a somewhat arbitrarily chosen unit. Whereas to the Indonesian government it represents a politically determined territorial entity, the neighborhood may or (more likely) may not denote a homogeneous, stable population. On one hand, while neighborhood boundaries of Ambon mainly correspond to those of their (1950s) colonial counterparts – which previously exhibited a degree of sameness in terms of religious, ethnic, and class makeup – some homogeneity might be assumed. On the other, rapid immigration and social transformations occurring since the 1970s render such an assumption questionable. A second problem is that the population size and geographic area of neighborhoods varies drastically both within and among cities.

In spite of this, the neighborhood holds definitional advantages over other units of analysis such as 'kampung' and 'community', which are more vague. These latter units also suggest unity of culture and commitment and thus tend to be less defensible concepts in the context of multi-ethnic populations. The neighborhood is the lowest level of formal organization that can interact with the state in Indonesia and it is the unit at which the state initiates many of its urban management efforts. In Ambon where neighborhoods are relatively small, there additionally appears to be a widespread resident identification with these units as a primary unit of residential space<sup>2</sup>. Because of its political status,

---

<sup>2</sup> This was evidenced by resident responses to a query of 'where do you live?' collected in several marketplaces. A majority of respondents polled identified their place of residence by neighborhood name, some also named a specific portion (upper, lower, river, beach).

choosing this 'place' unit for urban research also facilitates research approvals, data collection and analysis for the researcher. Another consideration of note for the researcher is that many of Ambon's neighborhood boundaries are coterminous with watersheds or subunits of watersheds. This presents opportunities for further ecologically-based studies. Thus, while the neighborhood unit appears in some ways to retain social and geographical coherence, there also exist countervailing forces for differentiation and diffusion as well.

The choice of the household as a unit of analysis also requires some scrutiny. As we saw in Chapter 2, there is no simplified conceptual way of defining a household. However, because the goals of the research included investigating the conditions and functions of households themselves, no 'hard and fast' preliminary definition of the household was adopted. Instead, per Friedmann (1980) a household was conceptualized initially as:

..a co-residential unit of organization, diffusion and decisionmaking which possesses structure as well as identifiable functional relationships to the environment.

The organizational capacity and activities of households thus are not theorized as results of a fixed set of elements, but are rather seen as outcomes of dynamic social and environmental processes. In this study, various aspects of individual households were examined via the household survey, in a search for similarities or differences in relationships, arrangements and strategies for managing habitats. These included household makeup and economic, social, cultural, physical, and attitudinal aspects.

Group organizing and reciprocal efforts to provide environmental services or otherwise manage environmental factors were likewise investigated via the household survey and daily observations<sup>3</sup>. Various affiliations such as gender, ethnicity, religion, kinship, and occupation were explored as possible catalyzing forces.

### ***Selection of the Study Neighborhoods***

Study neighborhoods were identified via a non-random process of expert selection. Several neighborhoods were initially identified by urban planners, city engineers, and university faculty in Ambon who were asked to recommend neighborhoods which typified the social and environmental trends presently encountered in Ambon City. An initial list of sites was quickly narrowed via visits to the neighborhoods, with selection of two neighborhoods based upon multiple criteria; namely, proximity to city center (both neighborhoods selected are in at the edge of the central city), rapid growth rates, geography (both encompass a river and border on Ambon Bay), the presence of environmental degradation and the willingness of neighborhood officials to host such a study.

### ***Five Methodological Components***

The five methodological components of the research are archival research, environmental and social (household) surveys, participant observation and key informant

---

<sup>3</sup> The definition of organization used includes formal groups (such as religious groups or rotating savings and credit associations) as well as informal networks and groups.

interviews. The overall research design is summarized at Table 3.2. and the types and sources of data collected for each neighborhood are summarized at Table 3.3.

### Archival Research

Archival research consisted of the review of printed and electronic documents, maps, photos, and other sources to investigate the national, regional and local contexts of urbanization and environmental management.

### *Environmental Literature Review:*

This component consisted of an intensive survey of existing maps and printed materials in Indonesian, Dutch, and English documenting historical and contemporary conditions of the physical environment, particularly changes associated with processes of urbanization in Ambon. Basic data were gathered on resources and human modifications of marine and terrestrial ecosystems, as well as natural phenomena such as climate, geology, coastal processes and the presence of flood and earthquake hazards. Where available, additional data on solid waste systems, sanitation, potable water and energy use were gathered. The bulk of this background research was conducted at the Pattimura University, located in Ambon, with additional documents located at government agency offices in Ambon and Jakarta.

**Table 3.2. Overview of Research Design.**

| <b>METHOD</b>                                | <b>DATA TYPES</b>   | <b>OUTCOMES (DATA FORMS)</b>  | <b>DATA LEVELS</b>  | <b>INSTRUMENTS TECHNIQUES</b>   |
|--|---|---|---|---|
| Household Survey<br>(100 HHs)                | Qualitative & Quantitative:<br>Economic<br>Demographic<br>Social relations<br>Political<br>Environmental<br>Quality of Life | Single item indicators on survey, Written notes                     | Household<br>Neighborhood                                       | Survey instrument,<br>Door-to-door survey of targeted HHs<br>Jotted notes                           |
| Participant Observation                      | Qualitative & Quantitative:<br>All topics   | Written /typed<br>Fieldnotes  | Individual<br>Household<br>Neighborhood<br>City                 | Observations of <i>everyday life</i> ,<br>(conditions, actions)                                     |
| Key Informant Interviews<br>(35 Individuals) | Qualitative:<br>Economic<br>Demographic<br>Social relations<br>Political<br>Environmental<br>Quality of Life                | Written notes,<br>Tape recordings,<br>typed transcripts             | Individual<br>Household<br>Neighborhood                         | Semi-structured interviews using interview guides, with NH officials and others                     |
| Environmental Surveys                        | Qualitative & Quantitative<br>Environmental quality, Spatial  | Fieldnotes, Maps<br>Photographs,<br>Photocopied documents           | Neighborhood<br>City  | Walking surveys<br>Government documents   |
| Archival Research                            | Qualitative & Quantitative:<br>Background Info, all areas   | Photocopies<br>Written notes and summaries<br>Government statistics | Neighborhood<br>City<br>Provincial<br>National<br>International | Library and Govt. Office visits,<br><br>Collections of written summaries, Historical accounts, etc. |

**Table 3.3. Types & Sources of Neighborhood Level Data Collected.**

| <b>INFORMATION</b>   | <b>PRIMARY SOURCE</b>                   | <b>SECONDARY SOURCE</b>           | <b>ADD'L SOURCE</b>                  |
|--|---|-----------------------------------|--------------------------------------|
| <b>Demographic</b><br>Age, sex, education, religion, HH size, ethnicity                                    | HH survey                               | Kelurahan records                 |                                      |
| <b>Economic</b><br>Income, employment, etc.  | HH survey                               | Kelurahan records                 | Informant interviews                 |
| <b>Residency</b><br>Length, origin,  | HH survey                               |                                   |                                      |
| <b>Housing</b><br>Condition & Density  | Observations                            | HH survey                         | Informant interviews                 |
| <b>Land Tenure &amp; Home Ownership</b>  | HH survey                               | Lurah interview                   |                                      |
| <b>Environmental Conditions</b><br>Including hazards, crime  | Municipal documents, university studies | Observations mapping, photographs |                                      |
| <b>Health Conditions</b><br>General, illness history, nutrition  | HH Survey                               | Health center records             |                                      |
| <b>Quality of Life</b><br>Perceptions of residents, satisfaction   | HH Survey                               | Informant interviews              |                                      |
| <b>Infrastructure &amp; Services</b><br>Water supply, sanitation, drainage, solid waste, electricity, etc. | HH Survey                               | Researcher observations           | Municipal records, Kelurahan records |
| <b>Social Linkages</b><br>Organizations, groups, patronage   | HH Survey                               | Researcher observation            | Informant interviews                 |
| <b>Environmental Management</b>  | HH Survey                               | Observations                      | Informant interviews                 |
| <b>Transportation</b>  | HH Survey                               | Observations                      |                                      |
| <b>Gender Roles, HH Labor &amp; Access</b><br>Housework, subsistence work, etc.                            | HH Survey                               | Informant interviews              | Researcher observation               |
| <b>Historical Settlement Growth Patterns</b>   | Archival research municipal documents   | Informant interviews              |                                      |
| <b>Leadership</b>  | Informant interviews                    | Surveys                           |                                      |
| <b>Political Dynamics</b>  | Informant interviews                    | Government documents              |                                      |
| <b>Social Dynamics</b>   | Observations                            | Informant interviews              |                                      |

### *City Statistics:*

A review of Indonesian government statistics was conducted in order to gain an understanding of patterns of population growth and settlement in Ambon, as well as related social, economic and political characteristics. Statistics on education, migration, employment, health, political activity, and other topics were collected. Where available, statistics specific to the two case study neighborhoods were also collected.

### *Planning Literature Review:*

A review of national, regional and local planning literature, including regulations, plans, maps and project documents was conducted in order to gain an understanding of administrative systems, land use patterns, levels of public infrastructure and services, and project history. Where available, information specific to the two case study neighborhoods was collected.

### *Political Economy*

Research was conducted in libraries, in the offices of government agencies and organizations, and via the internet to obtain historical and contemporary information on interlinked economic and political factors influencing processes of urbanization, development and environmental management at the national, regional and international levels. Key informant interviews also provided essential information regarding shifting economic and political relations in Indonesia and Ambon.

### Environmental Surveys

Although the scope of the research precluded a full scientific study of water and air quality, on-site (ocular) observations of environmental conditions and land use throughout the study neighborhoods were made, with data compiled as notes, maps, written measurements, and photographs. Environmental surveys documented the physical environmental conditions in and around the neighborhood. Activities included stream surveys, shoreline surveys, a survey of existing open space, and research on septic systems, storm drains and waste management systems, geology, soil and vegetation conditions, water quality, and urban wildlife. In these surveys, environmental conditions were recorded in notes and photographs, and both neighborhoods were mapped. Stream, shoreline and general neighborhood surveys were conducted twice, once in the dry season, and again in the rainy season. Observations on physical access to infrastructure and services, housing conditions, vulnerability to hazards, and population density were also noted.

### Household Survey

A main source of data was an in-depth household-level survey using a structured survey instrument. The survey was administered to 100 households in the neighborhoods of Batu Merah and Waihaong over a period of about six months. A broad range of data collected for this component included basic household conditions, relations and practices, as well as perceptions about the environment and level of resident satisfaction. The types of information obtained through the survey are summarized as Table 3.4. A preliminary

**Table 3.4. Types of Information Obtained through Household Survey.**

| <b>HOUSEHOLD MEMBER DATA</b>   | <b>INDIVIDUAL INTERVIEWED</b>                            | <b>HOUSEHOLD DATA</b>   |  |
|--|--|---|--|
| Age  | Age  | Income pooled (all sources)   |  |
| Sex  | Sex  | Consumer goods owned  |  |
| Marital status   | Religion   | Assets / Savings  |  |
| Household status / role  | Marital status   | Expenditures / month<br>(Food, fuel, electricity, rents, school, water, transpo, etc) |  |
|  | Length of residency                                      |   |  |
| Employment   | Origin   | Foods:<br>(Preferences, sources, amount consumed )                                    |  |
| Contribution to total household income   | Education  | Borrowing, credit, debt   |  |
| Participation in household labor<br>(cleaning, water, cooking, babysitting, bill-paying etc) | Employment   |   | Household enterprise,                          |
|  | Transportation   | Subsistence activities  |  |
|  | Mobility – past year                                     |   |  |
|  | Political activity                                       | Decisionmaking (financial)  |  |
|  | Perceptions:<br>(Environmental and social conditions)    | Benefits:<br>(Health insurance, rice ration, et                                       |  |
|  | Satisfaction:<br>(Environmental and economic conditions) | Health history,<br>Use of health facilities   |  |
|  | Relations with neighbors                                 | Household changes:<br>(Composition -past year)  |  |
|  | Participation in decisionmaking                          | Access to infrastructure and services   | Group Membership activities (includes arisan)  |
|  |  |   | Participation-Govt. programs                   |
|  |  |   | Housing (Condition, size, construction, tenure |
| Access to amenities:<br>(Water, waste, toilet, storm drain, electricity)                     |  |   |  |
|  |  | Shared facilities and services  |  |

instrument was developed and pre-tested in ten households in two nearby low-income neighborhoods (Mardika and Rijali) to ensure its appropriateness to local conditions. The instrument was revised and re-tested in five more households before being administered to the study neighborhoods. The survey questions are found at Appendix A.

### *Selection of Survey Households*

The sample was severely handicapped by the fact that no sampling list of households was available to use as a sampling frame for either neighborhood. Although the majority of the city's population was known to be 'low-income', the reported (but not officially documented) economic, as well as ethnic, religious and social heterogeneity within neighborhoods posed a barrier in attempting a purposeful sampling strategy. Thus a simple random sampling strategy was chosen based on the total number of households, household size and inhabited area of each neighborhood as reported in government statistics. In the two neighborhoods of Waihaong and Batu Merah, samples of 40 and 60 households respectively were initially determined to be of an adequate size to produce statistically reliable data (Table 3.5)<sup>4</sup>. However, as the study progressed, the population estimates upon which these numbers were based fell into question. This development and its implications are discussed further in Chapters 5 and 6.

Sample households were identified spatially by superimposing a grid upon a map of each neighborhood and selecting the house nearest each intersection of the gridlines.

---

<sup>4</sup> Initial verification of survey sample size was based on several cross checks between initial data sets derived from different government agencies. Data sets were: estimated total population and estimated household size, estimated religious makeup (by percentage) and estimated average education level.

**Table 3.5. Summary of Household Survey Component in Two Neighborhoods, 1997-98.**

| <b>NEIGHBORHOOD</b>                                   | <b>POPULATION <sup>a</sup></b> | <b>TOTAL HH</b> | <b>HH SURVEYED</b> | <b>SAMPLE %</b> |
|---|--------------------------------|-----------------|--------------------|-----------------|
| Kelurahan Waihaong                                    | 5,500                          | 1,261           | 40                 | 3%              |
| Desa Batu Merah - Total Area                          | 29,583                         | 5,478           | —                  | —               |
| Desa Batu Merah - Urbanized Portion Only <sup>b</sup> | 28,103                         | 4,533           | 60                 | 1%              |

a. Population numbers are approximate.

b. Agricultural areas of Batu Merah above the city are not included. Roughly 70 hectares of Batu Merah lie in the urban area. In turn about half this area is occupied /urbanized; the remaining 35 hectares are areas of precipitous slopes, a river, roads and a landfill.

Where a gridline fell near a river, shoreline, waste collection site or other significant feature, an attempt was made to effort was made to select the household nearest the feature. The systematic point sample map used for the sample selection is displayed at Appendix D. While not the most desirable sampling strategy, it proved the best available.

Preliminary survey data regarding the ethnic, religious and economic makeup of the Batu Merah neighborhood were cross-checked in the field against narrative

information provided by neighborhood officials. The sample population data were found to have some basic characteristics corresponding to those reported in preliminary accounts of government officials<sup>5</sup>. Survey data collected in the Waihaong neighborhood were not cross-checked in this manner.

### *Administration of Survey*

The structured household surveys were administered to a total of 100 households in the two neighborhoods over a period of approximately six months. The process consisted of approaching targeted households, introducing myself, elaborating the aims and objectives of the research and the reason why their neighborhood had been chosen, and requesting an interview. The interview was then either conducted on the spot or scheduled for a future date. Interviews began with an introduction to the contents of the survey and an assurance of anonymity and confidentiality of interviewee responses. Respondents were also told that they need not answer any questions they deemed inappropriate, intrusive or otherwise objectionable. Each interview typically lasted 90 to 120 minutes; where respondents experienced time constraints some were administered in two sessions. Each respondent was asked numerous questions in each of several areas pertaining to the household: economic activities, wealth and income-sharing; physical conditions and health; intra-household decisionmaking and division of (environmental management) labor, and the use of space, and social activities and participation in group

---

<sup>5</sup> Official statistics regarding ethnic and economic characteristics are only collected on a very general level—e.g., number of newcomers, housing condition, families above and below ‘prosperity’ line. Moreover, only data from officially registered individuals and families are collected even though neighborhood officials acknowledge that the number of unregistered residents is substantial.

activities/organizations. One member of the research team asked questions and noted results on the survey form, while another took supplementary notes in a separate notebook. These supplementary notes generally consisted of observations on house size, composition, layout and condition, unusual living conditions or arrangements, a list of *other people present during the interview* and notes on their behavior (such as interruptions) and apparent health, and other observations. The second person was also able to engage with interrupters, allowing the interview to continue.

As it turned out, a vast majority of the survey respondents were women. This may reflect selection bias based upon the timing of the survey, my own gender or other *unknown factors*. *Most interviews were conducted between the hours of 10 a.m. and 7 p.m.*, a frame which may have excluded males engaged in waged labor outside the home. Yet, in nearly 30 percent of cases adult male household members were nearby during the survey but chose not to participate. Whether men were present or not, overall women were more amenable to being interviewed. They also seemed to have a more ready understanding of household and neighborhood conditions, activities, and resources, perhaps because that is their socially and culturally defined role.

### Key Informant Interviews

Interviews with key informants were based upon semi-structured interview guides (Appendix B). Key informant interviews provided opportunities for defining the parameters of urban environment and environmental degradation, identifying perceptions, knowledge, and key issues of concern to residents, identifying various types of

networking and environmental management activities, and providing historical accounts of settlements.

### *Selection of Key Informants*

Informants were identified through a non-random selection process of chain sampling in the neighborhoods, at the university and in government offices. This consisted of asking a number of people whom to talk to, and selecting those individuals who were named repeatedly in these polls. Thirty five key informants were identified through this process. The group of informants included market vendors, traders, neighborhood leaders, women's group leaders, fishermen, planning officials, doctors, *becak* drivers and others. Approximately 63% of respondents were male and 37% were female (Table 3.6).

### *Interview Methods*

Interviews of key informants consisted of multiple sessions. An initial interview guide consisted of broad questions about environment and health conditions, and how responsibility for various aspects of urban environmental management should be distributed. A pre-test revealed this to be an inappropriate approach, and the interview guide was modified to focus more on personal histories, neighborhood histories and perspectives on a variety of more narrowly delineated environmental and social topics.

Key informants were also asked to review various aggregated data from the neighborhood surveys and report back on 'typicality' of responses. Each respondent was

**Table 3.6. Occupation and Principal Employment of Key Informants.**

| OCCUPATION               | PRIMARY ACTIVITY | SECONDARY ACTIVITY |
|--------------------------|------------------|--------------------|
| Civil Servant            | 12               |                    |
| Vendor                   | 5                | 3                  |
| Trader                   | 4                | 2                  |
| <i>Becak</i> Driver      | 2                | 0                  |
| Neighborhood Official    | 2                | 4                  |
| University Faculty       | 2                | 0                  |
| Doctor                   | 2                | 0                  |
| Shop Owner               | 2                | 0                  |
| Seamstress               | 1                | 1                  |
| Laborer, Plywood Factory | 1                | 0                  |
| Laborer, Hardware Store  | 1                | 0                  |
| Taxi Driver              | 1                | 0                  |
| Women's Co-op Worker     | 0                | 4                  |
| Fishermen                | 0                | 2                  |

Total Informants: Male (n=22), Female (n=13)

interviewed at least twice. Twenty two were interviewed four or more times. In addition to these interviews, unplanned, unstructured interviews with informants alone and in groups (the latter, in particular, in the case of fishermen and *becak* drivers) also occurred at various times. The average time spent with each informant was 4.5 hours

### Participant Observation / Ethnographic Methods

In assuming the role of neighborhood resident I attempted to become a part of the 'natural' setting (Heritage 1988). My aim as resident-observer was to experience everyday life in the neighborhoods in order to gain an understanding of the various relations of practice. As we saw in Chapter 2, this agenda entailed:

1. Objective exposure of invisible (objective) determining relations of which the agent is often unaware;
2. Retrieval of subjective perceptions or experience, including a focus on the active making of collective groups;
3. A second-order historical construction of the spaces from which perceptions and perspectives arise.

### *Observations of Everyday Life*

Observations of everyday life were made to examine neighborhood life in general and environmental management activities in particular. Daily observations of

neighborhood life took place in three types of sites: marketplaces (the primary workplace of a large percentage of the labor force); neighborhood streets and *lorong* or paths and alleyways between houses; and places where residents frequently congregated – public wells, *becak* ‘terminals’, public harbor sites, community gardens, and so forth.

Observations were conducted at all times of the day and night in order to gain an understanding of the various types of social interactions, the use of space, urban subsistence production and individual and group environmental management activities. Interactions sought to elicit perceptions, perspectives and interpretations which placed the adverse situations faced by people into their meaning systems (Zimmerer 1996, Sanjek 1989). At another level, daily observations also sought to confirm or disconfirm key informant propositions about (determining) conditions and relations which enable or constrain different levels or types of actions.

### *Organizations and Events*

I attended government meetings and program activities (child nutrition, vaccination, soccer, women’s organizations, etc.) held on certain days of each month. Besides these, there seemed to be a continuous succession of neighborhood cultural events and social gatherings – weddings, circumcisions, funerals, Christmas and Idul Fitri celebrations, birthday parties and many other events – which provided valuable opportunities to meet people and participate in the community.

## DATA ANALYSIS

The analysis of data consisted of coding and cleaning, and the application of several qualitative and quantitative analytical techniques.

### *Coding and Cleaning*

Interview, survey and observational data (qualitative and quantitative) were cleaned and coded using the following approach:

The survey data were checked for obvious errors and inconsistencies, and then entered into Excel spreadsheets. Data from most sections of the survey instrument were coded as numbers. The coding frame for this consisted of coding on interval (for example, income, age), ordinal (for example, perceptions of environmental quality) and nominal (for example, religion) scales. Missing or undecipherable data were indicated by the use of code 'XXX'. Additional observational data, nonconforming responses, and other qualitative data collected during the surveys were rendered into typed notes and indexed according to content using Microsoft Word functions (bookmarking, cross referencing, and color-coding). Interview data, observational data and other field notes were similarly rendered into typed notes, color-coded and indexed. Notes and photocopies from archival research were hand coded.

I embarked on fieldwork with certain preconceived notions of how the data I collected would be coded into categories for analysis. Ultimately, however, the coding categories were reworked due to several factors including incorrect presumptions on my part about the significance of certain types of data and relationships between them; new

insights and connections which arose from re-readings of fieldnotes; and the need to accommodate a large number of comments collected during the household survey that did not fit neatly into the categories on the original survey schedule<sup>6</sup>. This made for a very messy and protracted process.

### ***Data Analysis***

Components and relations analyzed were:

- (1) A search for obvious correlations among demographic, physical, perceptual and behavioral variables (for example among income, education, health status, attitudinal aspects, household size, or makeup, participation in organizations, and so forth);
- (2) An inventory of organizations and arrangements, especially those with *environmental management implications*, and search for categories;
- (3) An inventory and interpretation of resident perceptions of (a) living conditions, and (b) self-reported activities. Household survey data compared with key informant data;
- (4) Inventory of physical conditions;

---

<sup>6</sup> To maximize data retention, nonconforming survey responses had been noted on the survey margins and labeled 'other'. This made for a confusing array of miscellaneous 'leftover' responses, however these unanticipated responses were often the most interesting items on the sheet.

- (5) Summary and interpretation of historical political and social influences;  
and
- (6) Assessment of factors influencing resident ability to manage the environment, including 'cross-checks' with informants.

Initial distributions (frequency tables) for each survey variable were prepared and carefully checked for outlier responses. Suspect data were rechecked against original surveys. Selected survey data categories were then cross-tabulated, using Microsoft Excel (Appendix C). Correlation analyses (also created in Excel) of key social and environmental variables resulted in the production of correlation matrices in tabular form. These cross-tabulations and correlation matrices were employed in subsequent qualitative data analyses, in a search for possible social, economic and ecological links.

Qualitative data analysis followed a strategy based upon an initial search for categories and patterns, followed by a reshuffling checking and redefining of these categories and patterns based upon the three types of data collected (Patton 1980). Typed, color-coded and appended notes and interviews were printed out, cut into segments and sorted in various ways along with the cross-tabulations and correlation matrices of the survey data. The categories of analysis were modified and revised several times before the data fell into a meaningful structure. Unfortunately, correlation matrices were quickly found to be wanting, indicating mainly weak-to-moderate relationships (with important exceptions as noted in Chapter 5) and so thereafter most were considered

of limited utility. What ultimately emerged were ordered accounts of conditions of everyday life and social relations in the neighborhoods.

An inventory of intra-household and extra-household arrangements was derived from a combination of interviews, observations and self reports (main sources were the household survey and key informant interview data). Reciprocal and organizational behaviors (networking, group-forming) of residents were considered as combined outcomes of structured and unstructured elements, of embedded structures (*per* Bourdieu's ideas regarding individual's *habitus*) as well as practical and cognizant efforts for survival (drawing from network theory's concerns for the building of group interests and networks).

Likewise, the inventory and analysis of resident perceptions were informed by Bourdieu's ethnography and networking concepts. A search for patterns in perceptions (regarding the acceptability or unacceptability of environmental conditions and respondents' level of activity/participation) entailed a view of action as both interest-based and subject to multiple social structures and forces.

Data gathered on resident perceptions gathered from surveys were cross-compared across neighborhoods to determine similarities and differences. Compiled responses were also compared with data collected on existing physical conditions, resident health, organizations and mainstream perceptions of environment, health and social responsibility (as provided by key informant interview data). Because perceptions are considered as embedded within complex webs of social relations, no single

explanatory factor or set of explanatory factors was sought, nevertheless, efforts were made to identify commonalities and search for possible key influences.

A linked activity was the cross-comparison of multiple types of data (surveys, interviews, observations of everyday life, environmental surveys, photos and maps and other documentary evidence) from the various 'levels' to generate an overall list of connections and factors linking actions of individuals, households and groups in Ambon's neighborhoods, and where possible to provide details of the process(es) of their formulation and implementation. After secondary 'cross-checks' with informants (in which they were asked to interpret the results within their own meaning system), a typology was formulated from all the components, with categories of arrangements ranging from informal sharing and networking arrangements to more formal trading and other relationships. Rather than a comprehensive set of explanatory factors, this typology provides a general framework for discussing the relationships among the various physical conditions, structures and forces impinging upon local households and other collective action.

#### ***Other Limitations on the Data***

In addition to the research constraints described above regarding sampling and site selection, data coding, and the generation of large amounts of data from a multitude of sources, several other factors arose during the research which imposed potential or known limitations on the data collected. A few, such as access, the predominance of female respondents in the household survey and the onset of economic crisis, have

already been alluded to. These and other constraints are addressed more fully in Chapter 5 in the context of research findings), and in Chapter 6 within the consideration of the overall limitations and weaknesses of the study.

### ***Summary***

This chapter has described the study's rationale, interpretive experience, and methodological design, as well as some of the key advantages and constraints associated with its various methodological components. The study's rationale derives from (1) the failure of mainstream development models to redress linked problems of global inequality, expanding urban centers of the poor and deteriorating environmental conditions; and (2) the accompanying need to develop alternative frameworks. Such frameworks must share both an increased appreciation for the great social, spatial and other diversity of the urban setting and a main focus on the realm of politics. This latter concern in turn implies a need for an explicit examination of the existing constellation of power relations which includes an analysis of the effect of the researcher's own background, personality, and predispositions upon fieldwork and upon research outcomes.

This political ecology study encompasses aspects of both structure and agency, enfolding Bourdieu's ideas on *practice* and the constitution of society with an investigation of existing social networks in an effort to grasp intersecting ecological, social and political relations surrounding the phenomenon of urban environmental management. The study seeks seeks understanding through investigations at multiple

scales involving both structural analysis and investigations of reflexive action and organizing at the micro-level (individual, household and neighborhood). As such it requires a politically-focused multi-level, multi-actor inquiry. Accordingly the research design includes the use of both qualitative and quantitative methods, multiple data types, and analysis at multiple levels to understand local conditions and local action. In data gathering, the household is initially presumed as the primary unit of networking, collective decisionmaking and action *vis a vis* the environment. However, investigation also includes a consideration of other groups and network affiliations, including multi-household alliances, women's organizations, occupational and savings groups, and affiliations with state projects. The research frame incorporates Bourdieu's theory to interrogate the structured basis of individual behavior and perceptions *vis a vis* the environment, and a network concept of reflexive agency and social organizing as a means of identifying group formation and complex sets of associations.

A number of limitations and constraints associated with the research design and practice which imposed potential or known limitations on the data collected are identified. A few of these, such as the lengthy-survey-and-modest-sample-size design, or female-dominated survey samples were perhaps avoidable, while others, such as the systematic point sample procedure used for selection of sample households, and the onset of economic crisis, were not. The implications of these for the research outcomes are discussed further in Chapter 6.

The following two chapters present the research findings at all the various scales. Drawing mainly from archival sources, Chapter 4 summarizes the macro-scale political,

economic, legal and cultural context of urban management at national and provincial levels, before going on to outline the various local (metropolitan, district-level and other) factors structuring urban life in Ambon City. Following this, empirical micro-level findings from the two case study neighborhoods (as derived mainly from survey, observation and interview data) are presented in Chapter 5. Chapter 5 also ties together the various 'levels' of analysis via a consideration of local organizing actions for environmental management as products of both structuring forces and reflexive agency.

**CHAPTER 4**  
**THE TERRAIN OF PRACTICE :**  
**NATIONAL, REGIONAL AND LOCAL DIMENSIONS OF**  
**URBANIZATION IN AMBON**

**INTRODUCTION**

Households and their ability to manage the environment are subject to myriad *influences and contingent circumstances*. The same holds true for the many local groups engaged in overlapping networking and organizing activities. This chapter describes the context and setting of the study, examining the national, regional and local level settings to illustrate how the study sites are located within, and influenced by, actors, networks and processes at multiple levels. Although most of the labor, time, energy and resources for maintaining local livelihoods and environment are mobilized at the local (micro) level of the household or group, when viewed as a whole, everyday life in the neighborhood is very much enmeshed in macro level (national, regional and even international) processes and trends. Here, some broader historical influences of geography, economy, government, politics, policy and law are considered as they converge upon local social life and habitat.

## THE NATIONAL SETTING

### *Geography*

Indonesia (Figure 4.1) is a broad tropical archipelago composed of thousands of islands,<sup>1</sup> countless ecosystems and hundreds of ethnic groups and languages. Its landmass totals nearly two million square kilometers, and in terms of population it is the fourth largest country in the world with its approximately 212 million people (PRB 2000). The complexity of this country, both in terms of its environmental setting and its human diversity, creates numerous difficulties for management. The Republic is divided into 27 provinces (*Propinsi*); each administered by an appointed governor. Geographically, the seat of government is centered on the island of Java, where more than 60% (over 127.2 million) of Indonesia's population resides.<sup>2</sup>

### *Urbanization in Indonesia*

Indonesia is a politically young nation, having declared independence in August 1945, after more than 450 years of colonial rule.<sup>3</sup> Although most of its population is still classified as 'rural', on the whole, Indonesia's population is becoming increasingly urban. This spatial shift began fairly recently. As of 1930 only nine percent of the population was classified as living in urban areas (Hugo et al. 1987). By 2000 the National Census reported that 39% of the population lived in urban places and predicted that more

---

<sup>1</sup> Estimates range from 10,000 to more than 17,000 islands.

<sup>2</sup> Java is an island approximately the size of New York (population 20 million).

<sup>3</sup> Colonizing influences include Netherlands, Britain, Portugal, Spain and Japan. Independence was formally achieved from the Dutch in 1949. East Timor and Irian Jaya (formerly West Irian) were ceded by Portugal in the 1970s.

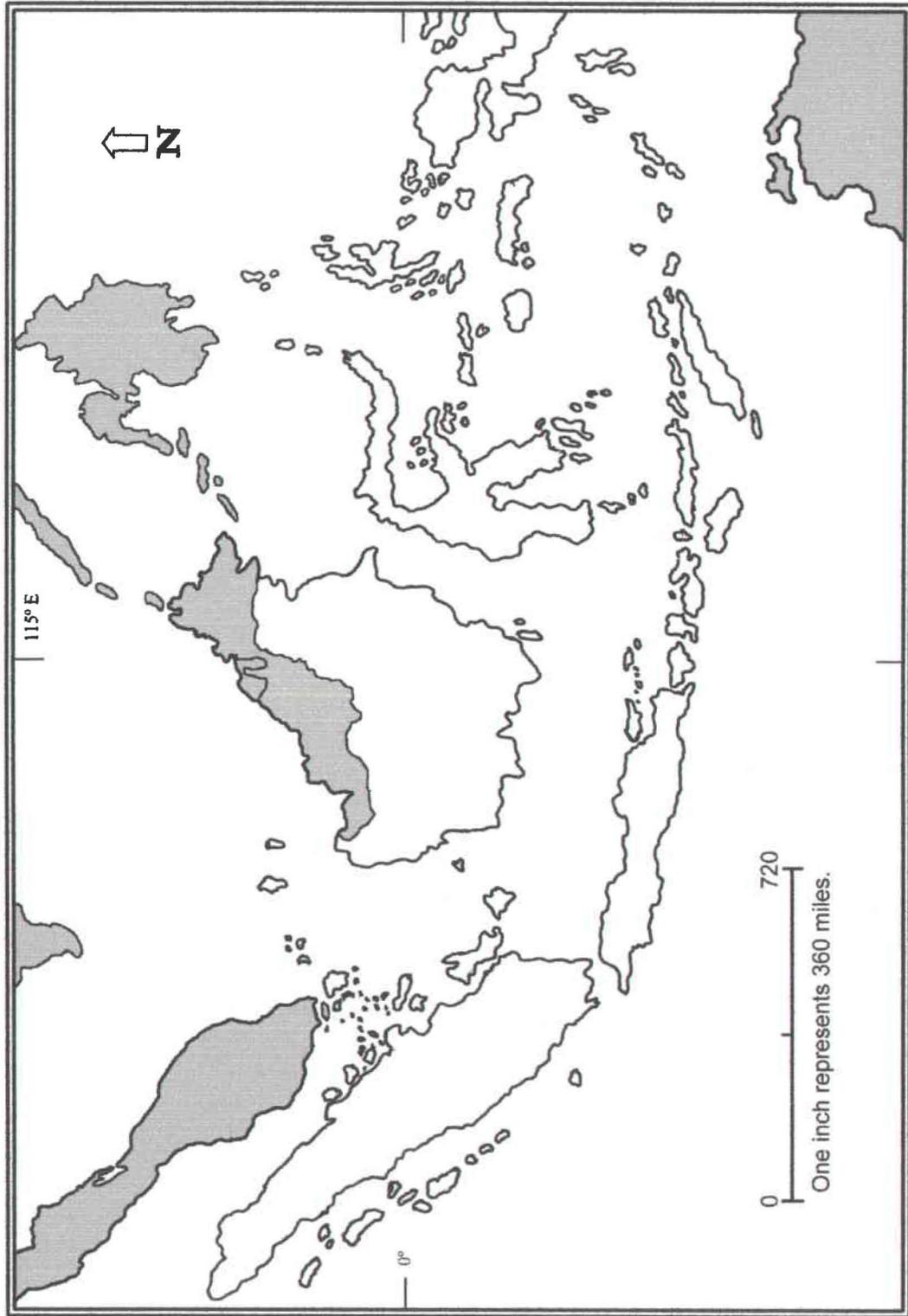


Figure 4.1. Indonesia.

Source: U.S. Library of Congress, 2000.

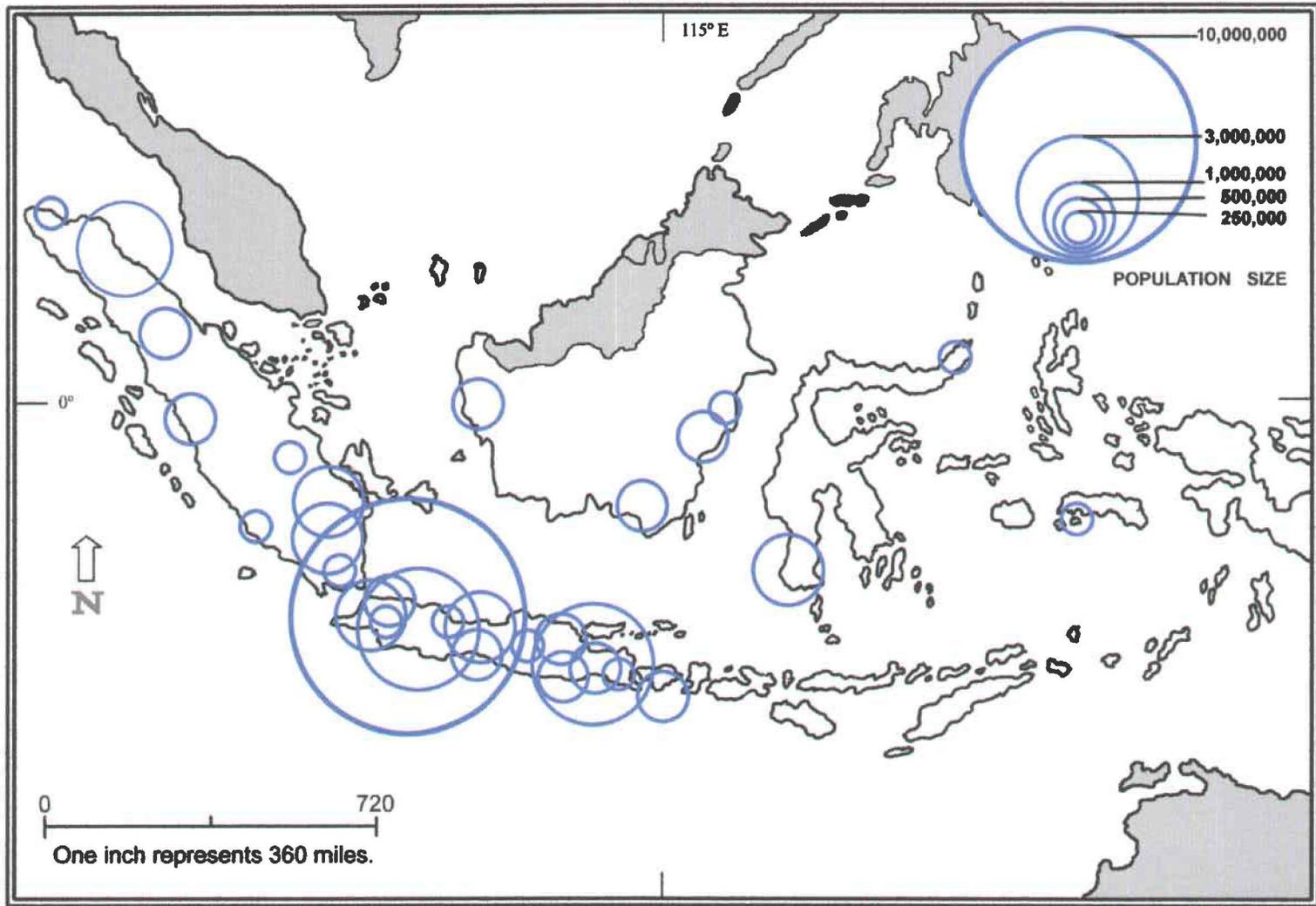
than 51% would live in designated urban places by the year 2020 (BPS Indonesia 2000).<sup>4</sup> In a separate assessment, USAID (1999) predicted that by 2004, 60% of Indonesia's population (155 million people) will reside in urban areas. Today, Indonesia has at least fifteen cities of over 500,000 people; of these, eight have over one million inhabitants (Figure 4.2) (Brinkoff 2000).

Although Indonesia's existing urban pattern is partly attributable to its colonial influence and agrarian history (Nas 1986, 1995), as we shall presently see, it is recent transformations in global and national economies which have produced the most dramatic changes in the rate and spatial pattern of urbanization (McGee and Robinson 1995). The past two decades have seen an acceleration of urbanization and polarization around a few primary urban centers, and chiefly around Jabotabek,<sup>5</sup> the Metropolitan region of Jakarta (Douglass 1990b, Dharmapatni and Firman 1995). With a population of more than 13 million, Jabotabek is more than four times the size of the next largest Indonesian city, and is the sixth largest city in Asia (Brinkhoff 2000). This mega-urban region is also experiencing multiple environmental problems including water shortages, widespread water and air pollution, loss of agricultural land and insufficient waste management systems (Soegijoko and Dharmapatni 1997, Nagtegaal 1995, World Bank 1994a). Other large port cities and secondary centers such as Surabaya, Bandung and Medan have

---

<sup>4</sup> Oftentimes statistical measures and basic data for Indonesia's economy, population and growth rates vary greatly. There is no single reliable set of figures for any of these, fortunately however there is some general congruence among the various sets of data in regards to order of magnitude and major trends. Figures cited here represent best estimates drawn from a variety of sources. The reader is strongly encouraged to review the data personally.

<sup>5</sup> This region incorporates the cities of Jakarta, Bogor, Tangerang, and Bekasi.



Source: ADFAT, 2000.

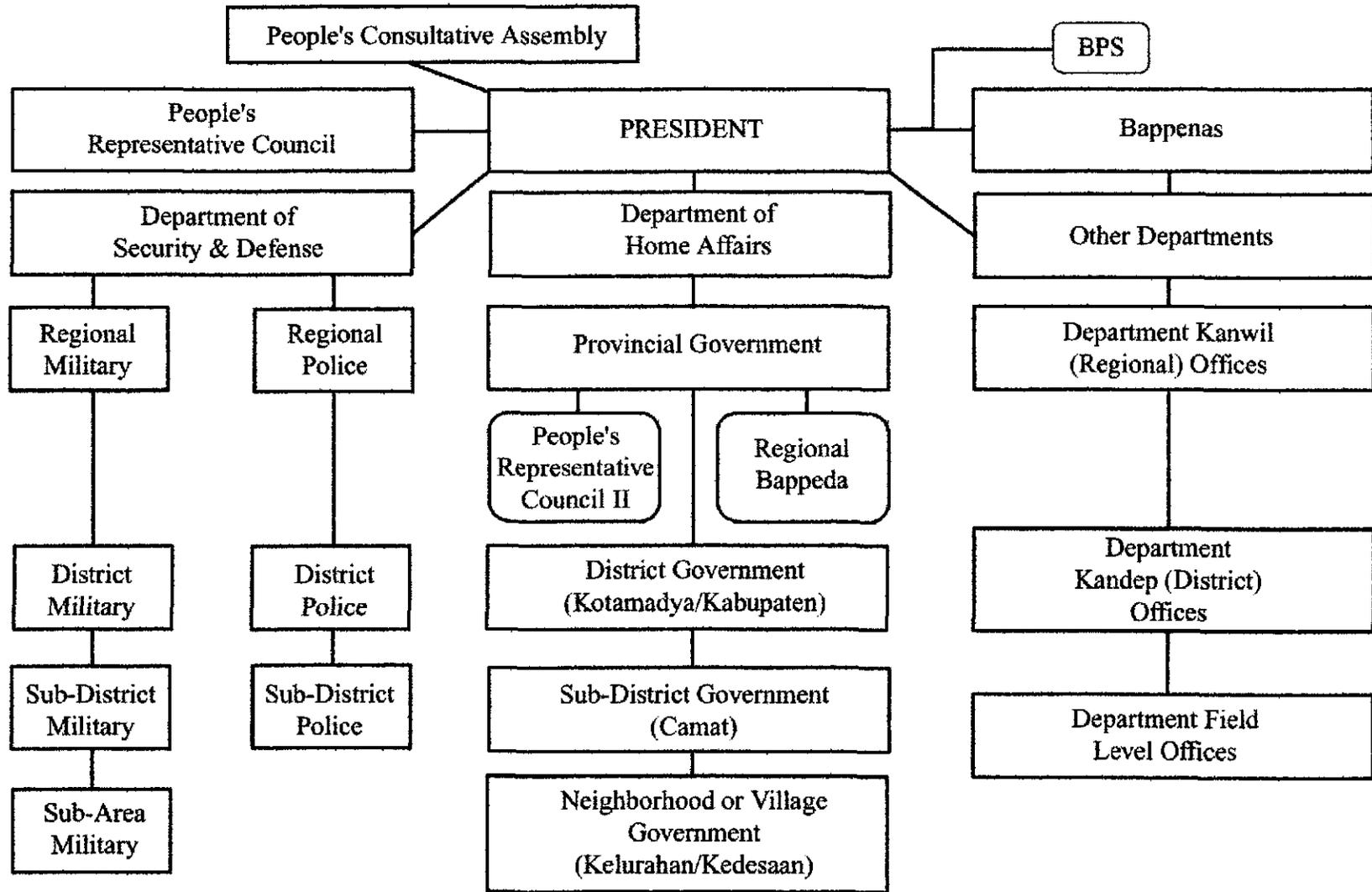
Figure 4.2. Urban Centers With Over 250,000 People.

also undergone similar transformations with rapid expansion and increased linkages, resulting in an overall uneven spatial pattern of urban development with accompanying environmental problems (Firman 1992).

Throughout the 1970s and 1980s the focus of Indonesia's policy concerning urbanization fluctuated between reducing rural-urban migration and redressing negative impacts resulting from rapid urban growth. None of these efforts was effective in stemming the tide of rapid urbanization and spatial polarization occurring in Indonesia. An understanding of why this is so requires a consideration of Indonesia's national development path over the past three decades, and its association with transforming global and regional economies. First, a brief description of the structure of Indonesia's government sets the stage for this discussion.

### ***The Structure of Government***

Indonesian government is primarily made up of national and provincial government, with power concentrated within a highly centralized authoritarian state. Under Suharto's presidency all government offices were placed under the control of the Office of the President, and these themselves manifested a strongly top-down hierarchical structure composed of vertically integrated offices at the national, provincial, and sometimes metropolitan level (Figure 4.3). Through its various programs, the central government exerts a powerful influence down to the level of the neighborhood, determining the basic urban forms, administrative activities and social institutions that occur there. In this way, not only are the spatial boundaries and internal structuring of



Sources: Freeman 1993, MacAndrews 1986.

Figure 4.3. Structure of National Government.

Indonesian neighborhoods largely determined, but public life is also permeated by the everyday programs and national ideology disseminated through these structures

The country's two main political institutions are the parliament and the Peoples' Consultative Assembly, a 1000-member body which every five years elects a president and vice-president and draws up guidelines for state policy. In the past three decades (and during the time this research was conducted), half of the Peoples' Consultative Assembly was composed of members of parliament, the other half of the military, regional bodies and the political parties. The military is the most powerful force in politics, after the president, and has historically played a large role in Indonesian government and politics. Although this situation now appears to be changing, many if not most of the top positions in the civil service have come to be occupied by appointed military officers (Kristiadi 1999).

Administration of all aspects of development begins at the national level. In processes of urban development and environmental management, there are four key entities: *Badan Perencanaan Pembangunan Nasional* or *Bappenas* (The National Development Planning Board); *Pekerjaan Umum* (The Ministry of Public Works, also known as *P.U.*); *Dalam Negeri* (The Ministry of Home Affairs); and *Keuangan* (The Ministry of Finance). These entities and their regional counterparts do not command equal powers in the development planning process, as may be seen in Figure 4.3. Heads of central government ministries are appointed directly by the president and they conduct departmental business directly through regional and local offices (although there has long been a movement to devolve some authority to provincial and district levels).

Non-departmental agencies or boards serve support and coordination roles, and report directly to the president. Among these are *Bappenas*, The Central Bureau of Statistics (*BPS*), The Civil Service Administration Board, The Indonesian Institute of Sciences (*LIPi*) and The National Family Planning Board (*BKKBN*). The central ministries and their regional counterpart offices are funded and implemented by the national sectoral line agencies (and to an extent by the Boards, including *Bappenas*); giving them *de facto* precedence over the provincial *Bappeda* (*Badan Perencanaan Daerah* or Provincial Development Planning Boards) and district level offices.

Besides these key players there exist a multitude of other ministries and departments which may possess limited influence over, or share responsibility for, managing the urban environment. Examples are the Forestry Department, which has a primary responsibility for protecting and conserving critical ecosystems and watershed areas where urban drinking water is collected; the Department of Health which administers programs for water treatment, sanitation and disease prevention; the Ministry of Industry and Trade, which has an environmental unit within its industry research and development center; and the Ministry for Population and Environment (*Kependudukan dan Lingkungan Hidup* or *KLH*), which oversees Indonesia's Coastal Management initiative, Clean River initiative and the Environmental Impact Management Process (*AMDAL*) administered by the Environmental Protection Bureau, *Bapedal* (*Badan Pengendalian Dampak Lingkungan*).

The Office of the State Minister for *KLH*, although charged with creating and implementing national environmental policy, is substantially less powerful than a full-

fledged Ministry. Although it plays a coordinating role from the center, it has no regional offices or authority for enforcement in the provinces. In 1990, an effort was initiated to establish offices of *Bapedal* (*Badan Pengendalian Dampak Lingkungan* – the Environmental Impact Management Agency) which is headed by the State Minister for the Environment, in all provinces. As yet regional branches have only been established in a few provinces.

### ***Indonesia's 'New Order' State, and Integration into the Global Economy***

The origins and configuration of the present Indonesian state can be traced directly to the 1967 rise of the New Order, and its head, General Suharto. Suharto seized power following a military coup in 1965, and assumed control of a nation marked by a weak economy, political pluralism and lack of social cohesiveness. Suharto constructed a strong authoritarian state composed of a highly centralized bureaucracy and a powerful military. The stated dual mission of the New Order' state was to 'procure national security and the material accomplishment of economic development' (Borthwick 1998:466).

The state's ongoing program for development and social cohesion entailed on one hand, these strong institutions and controls, and on another, the promotion of conformance and homogenization via the construction of a shared national identity. According to Schwarz (1994:33):

The New Order of Suharto was conceived as...a strong state relatively insulated from the interests of any particular social group and capable of suppressing antagonisms based on ethnicity, religion or geography. Popular participation was to be deliberately and strictly limited through strict control of party politics and the press; and through the development of a strong military service and a large state apparatus.

Under the New Order presidency the political system, entitled *Pancasila* democracy,<sup>6</sup> was established, positioning Suharto as the sole authority in the country (Robison 1988, Smail 1998). The state's claim to legitimacy rested upon promises of development and 'order' – the latter considered as a precondition of the former. Political parties were restricted as were NGOs and the media. A developing bureaucrat class was 'depoliticized', in part through a process of incorporation wherein all civil servants were required to belong to a single organization KORPRI (*Korps Pegawai Negeri Republik Indonesia*) – allied with the 'government' party (Legowo 1999).

Robison (1990:134) describes the role of state corporatism:

The mass of the Indonesian 'middle class' has an ideological vision which does not extend beyond the authoritarian corporatism embodied in the state ideology 'Pancasila'...The successful political and ideological institutionalisation of the regime has made it far easier for individuals to succeed and survive within the ranks of the apparatus and its front groups than without it...Thus..whilst the growth of the middle class proceeds apace as a function of the growth of industrial capitalism, politically it has been absorbed into the authoritarian corporatism of the New Order regime by the very strength of the state apparatus.

---

<sup>6</sup> The five principles or *sila* of the *Pancasila* doctrine are belief in a single god; commitment to a just and civilized international humanity; national unity; wise government based on deliberation and consultation; and social justice for all Indonesian people.

Suharto described *Pancasila* as Indonesia's 'national essence' and continued to use it as justification for authoritarian rule throughout his tenure. He declared that, all 'mass organizations' were required to adopt *Pancasila* as their single basic code, and lessons in *Pancasila* remain mandatory for all educational levels in public schools. The *Pancasila* symbol is encountered ubiquitously – in *batik* design, school pins, political party logos, provincial flags, even toys. Morfit (1986:47) has described how the *Pancasila* concept has provided both an umbrella of unity and cohesiveness and a means of suppressing mass participation and national political action. Thus the *Pancasila* doctrine has simultaneously been evoked to symbolize a democratic society and movement towards inclusion, and used as a politics of containment and exclusion.

The Suharto administration also described the *Pancasila* doctrine as an ideology of mutual cooperation or *gotong royong*. In this manner the Javanese phrase *gotong royong* became a catchword of national struggle and national unity. *Gotong royong* today indicates a form of institutionalized spontaneous cooperation containing elements of voluntary reciprocity between members of a village or neighborhood to fulfill local needs (Sullivan 1992: 176). As a key symbol and organizing principle of the ideology of neighborliness, the *gotong royong* concept was, among other things, used to garner support for the formation and maintenance of sub-neighborhood territorial units of government (the administrative units called *Rukun Warga* or *RW* and *Rukun Tetangga* or *RT*) and to deploy unpaid village labor for state projects. As Bowen (1986:552) asserts,

..*gotong royong* is primarily used to underwrite the state intervention into village life.

Another powerful tool for integration developed by the state was the development of a national language, *Bahasa Indonesia*. Institutionalized as official 'democratic' language, exclusively used in public schools and government offices, and widely disseminated via the national television and radio stations, Bahasa Indonesia is an artificial language based upon the widely-used trade Malay. The experience of these changes, including interacting and thinking in a 'new' language, imposed a new pattern on national cultural and social life

### ***Three Decades of Development Planning and Urbanization***

The developmentalist pursuits of the state (which arguably may be said to have played a crucial role in accelerating economic growth) have taken various forms. The three decades of the 1970s, 1980s and 1990s saw important shifts in Indonesia's development policy, generally speaking, from approaches promoting self-reliance to outward-looking liberal market-based policies aimed at inducing rapid material growth. *Beginning in the 1970s economic restructuring was successively based upon three strategies: Import-Substitution / Industrialization; Green Revolution, and Export-Based development founded upon increased resource exploitation and enclaves.* To a significant extent, these restructuring phases have been shaped by dominant development models as promoted by major international lending institutions; models which mirror ongoing transformations in global capitalism.

The Import Substitution / Industrialization drive of the 1970s involved strong protections for domestic industry, mostly in the form of tariff barriers and import bans,

and funneled huge investments of national and foreign capital into activities which supported and promoted the expansion of the 'modern' sector (MacAndrews 1994, Wie 1991, Hill 1994). Ironically, this drive for 'development' appears ultimately to have resulted in urban bias and neglect of agriculture in development policies. A further paradoxical outcome of import-substitution policies was that rather than protecting domestic firms from foreign competition they actually facilitated the entry of foreign enterprises; by requiring investment as a condition of access to Indonesian markets, and by shielding investing TNCs against outside competitors.

Indonesia's early industrialization drive aimed at self-reliance, cranking up national industry, especially in transportation, communications, chemicals, and steel. The building and maintenance of this industry was funded mainly through oil revenues. Oil revenues also sustained the development of a large civil service sector,<sup>7</sup> and financed more than 75% of national development projects; including infrastructure development drives from the mid-1970s through the mid -1980s, in which massive outlays were made for roads, electrification and other infrastructure.

A second, overlapping policy approach involved the Green Revolution strategies which also began to be implemented in the 1970s. These were primarily attempts to attain self-sufficiency in rice production. According to Douglass (1990a:5):

---

<sup>7</sup> The rapid expansion of military and civil service in the 1970s and 1980s provided an important means of upward mobility for the rural and urban poor. The rise in income levels during this period led to the formation of a new Indonesian 'middle class'. Indonesia today still has a large bureaucracy. In Ambon, more than one-fifth of the population is employed by civil or military services.

..government policies in effect redefined rural development as a technical problem of increasing the production of rice.

Green Revolution policies resulted in the development of large-scale irrigation and cooperative programs, nationalized systems of fertilizer and seed distribution, rural electrification, and other programs. As with the industrialization drive, success of these programs was largely based upon oil revenues. From 1973 to 1980 agriculture's share of GDP rose appreciably, with Indonesia becoming self-sufficient in rice production beginning in 1984 (World Bank 1996).

Indonesia's policies emphasizing import substitution and green revolution were in large part phased out by the mid-1980s, following periodic economic crises triggered by fluctuations in world petroleum markets. Earlier gains made in agriculture were eventually lost as government strategies increasingly afforded lesser role to agriculture as a growth industry in favor of export-oriented manufacturing, and other outwardly-focused industry. Agriculture's contribution to GDP fell from 30% in 1975 to 23% in 1985 to 16% in 1996 (ADFAT 2000:167, Hill 1989, World Bank 1999).

By the mid-1980s, Indonesia had progressively become entwined in a 'global process of increasing economic and technological interdependence of cities, countries and firms' (Moulaert and Scott 1997). This 'internationalization' has entailed an increasing global domination of market forces, with economies increasingly interconnected through transnational capital's international circuits of production, commerce and finance (Armstrong and McGee 1985, Harvey 1995). These transformations, particularly as advanced through policy imperatives of multilateral lending institutions such as the IMF

and World Bank, have exerted strong pressures for restructuring of economies, space and politics of governments who now see themselves as vying for position in the global economy.<sup>8</sup> Indonesia's present economic policies clearly reflect these imperatives. Its present growth focus remains formulated around export-oriented manufacturing, high-tech development, and resource extraction mainly for export. Trade liberalization and expansion of foreign investment have become crucial elements of industrialization strategies and foreign entities now control a significant share of key enterprises such as oil extraction, forestry, mining, and manufacturing. As the fourth most populous nation in the world, Indonesia also presents potentially huge market opportunities for global firms. Indeed, up until the 1997 Asian economic crisis, Indonesian markets were a strategic target of international capital.

### ***Outcomes of New Order Economic Development Policies and Trajectory***

Three major outcomes of the New Order's controls on labor and emphasis on unfettered growth and market-based solutions were: (1) continuing economic inequalities; (2) the spatial polarization of development and accelerated urbanization; and (3) increasing environmental degradation.

---

<sup>8</sup> The New Order's campaign of increasing investment and boosting exports included three devaluations of the rupiah over a period of eight years; increases in interest rates; reductions in import tariffs and other barriers; exemptions for exporters; deregulation of investment; and sweeping deregulation of the financial sector (World Bank 1994b, World Bank 1999). Tight controls on labor organizations and wage levels were also maintained by the president and the army (Rinakit 1999).

### Economic Inequalities

Although marked economic successes were achieved under the New Order regime, the benefits of its development policies and rapid growth did not accrue equally to all sectors of society nor to all geographic regions. From 1967 to 1988, under the New Order government, per-capita GDP increased at a rate of more than 4 percent annually, one of the highest sustained growth rates of any country. From 1988 to 1996 the economy grew nearly 7 percent per year, and Indonesia was widely hailed as a miracle economy, a 'mini-dragon' following in the path of Korea, Hong Kong and other successfully developing Asian market economies. During this period education, health care, and income levels all improved and average incomes and quality of life were improved in Indonesia. The government estimated that the number of Indonesians living in poverty fell from 70% in 1970 to 15% in 1990. Likewise, the government reported that its fostering of the private sector had created millions of jobs (World Bank 1990).

Yet poverty was still widespread by the mid-1990s. Millions of people remained very poor and many still were living near the line of absolute poverty. Moreover critics insist that the pattern of economic growth created more inequalities in wealth distribution. At first (between 1970 and 1989) the income-inequality gap in Indonesia shrank. But in the subsequent years up to 1996, the share of national wealth held by the lowest 40% of the population dropped to 19% from 21%. The share of the next 40% of the population fell to 35% from 37%, while the top 20% saw its share grow to nearly 46% from 42% (FEER 1998a, Schwarz 2000).

At the national level, McBeth (1998) links these inequalities back to structural changes in employment and particularly to the neglect of agriculture in favor of export-oriented manufacturing. Moreover, the growth of new (industrial) production was concentrated mainly on Java. Indonesia's rural outer islands, where development remained narrowly focused on commodity exports, quickly were left behind as their economies remained stagnant and dependent. Rural and remote areas also received far less investment in infrastructure, health care, education and other services. Serious persistent underemployment and unemployment exist in the agricultural sector, which still accounts for more than 40% of national employment<sup>9</sup>. In 1995 regional per capita income for Maluku province was just \$US 320 compared with \$US 1,889 for Greater Jakarta (BPS Maluku 1996).

### The Spatial Polarization of Development

Indonesia's economic trajectory has also shaped its pattern of urban growth. In this sense economic policies comprise an implicit spatial policy for Indonesia's urban development. Import substitution policies beginning in the 1960s were an initial driving force for rapid industrial development, which occurred primarily around Jakarta. Foreign investment, which began to increase in the mid-1960s, has also been geographically concentrated on Java, and Jakarta in particular. These factors, coupled with the early growth of the city's bureaucracy and financial sector, created the impetus for polarized

---

<sup>9</sup> McBeth (1990:31) further argues that as a large segment of Indonesia's population remains in traditional agriculture, agriculture should be developed as a leading growth sector for the country. This view has also

development around Jakarta. The promotion of resource extractive activities in the 1970s also fed this trend as revenues from Indonesia's outer island provinces were channeled directly back to the center for redistribution nationally. This redistribution of income saw Java and Jakarta receive a disproportionately large share, supporting among other things, continuing high investments in the development of large industry and infrastructure.

Beginning in the 1970, the Indonesian government also increased investments in infrastructure and services to regional port cities which served as suppliers of raw commodities to Java and to international markets. These investments created a magnet effect with resulting rapid growth of these centers. Expansions of bureaucracy and military forces in cities such as Jayapura (Irian Jaya) and Ambon (Maluku) also served to keep some potentially separatist populations under the firm control of the center.

The 1970s green revolution policies also stimulated the flow of migrants to cities by promoting less labor-intensive forms of agriculture, the consolidation of agricultural land by large landowners, and the increased mobility of rural populations through increased transportation linkages. The transformations of village life also included shifts in consumption towards manufactured goods produced in cities and changes in attitudes and expectations generated by government institutions such as schools and village health centers. Also, beginning in the mid-1970s, funding for Indonesia's transmigration policy which sought to alleviate population pressures on Java and other overcrowded areas, was expanded, resulting in the resettlement of 3.5 million people between 1974 and 1990

---

been endorsed by Douglass, Friedmann, McGee and others, who advocate diversification of agriculture and expansion of linked agriculture-based industries.

(Adhiati and Bobsien 2001)<sup>10</sup>. This mass movement of people undoubtedly contributed to growth of cities and towns in Indonesia's outer islands. Ultimately, however, this endeavor to deflect migration away from Java was undermined by export base and pro-DFI policies focused primarily upon Java (especially Jakarta, Bandung, Surabaya, Medan and Semarang). As Java's cities continued to receive the greater part of investment and become interlinked via improved transportation, communications and other infrastructure, migration to these centers concurrently increased, resulting in net inflows of population by the mid-1990s. A related pattern was that while inter-city linkages continued to grow within Java, and between Java and outer island port cities, linkages among outer island cities remained poor.

#### A Chain of Environmental Degradation

Accelerated environmental destruction beginning in the 1980s may also be traced to increased reliance on export-base development policies and increased population – factors which subsequently created pressure to step up exploitation of accessible natural resources (forests, minerals, animal and plant species, fish) and intensification of urban lands. These pressures have remained unremitting, creating numerous environmental problems nationwide (MEIP 1990, Broad 1995, Gillis, 1988, Schwela 1995). In Maluku province, the location of the present study, large-scale problems include deforestation and forest fires, coral reef destruction and degradation of coastal areas, serious water pollution, loss of biodiversity, degradation of fisheries, destabilization of sensitive and

---

<sup>10</sup> Compared with 674,000 people resettled between 1949 and 1974.

hazardous areas, species loss and degradation of agricultural lands (Monk et al. 1997, Naamin 1987, Moss and van Der Wal 1998).

Increasing environmental degradation in Indonesia's cities is also connected with development policies; insofar as these have produced powerful forces for urbanization and a chronic inability of government to keep abreast of the needs of expanding urban populations. A 1994 summary report by the International Institute for Environment and Development (IIED) states that

The major cities of Java, and some of those on Sumatra and Kalimantan are already facing serious health and environmental problems.

The report goes on to note that only four cities have sewer systems, and water supplies are inadequate in most cities for conventional wastewater treatment. Soerjani (1993) states that domestic sewage and solid waste is a major contributor of river pollution, making up about 45% of water pollution nationwide, and over 50% in Java's urban rivers. Industry is also a major contributor of industrial wastes and pollution, making up between 25% and 50% of total water pollution load. Studies conducted in Malang, Semarang and Surabaya reveal that the major rivers of these urban centers are heavily contaminated, so that water is undrinkable and poses a serious health threat, (ASDEV 1998, CSIS 1999, Santosa 2000). Although accurate national statistics on health and welfare are lacking, according to USAID (1999) estimates, over 11% of infant deaths are related to waterborne disease, over 55% of urban residents lack access to clean water, and 25% lack safe (contained or otherwise non-contaminating) toilet facilities.

Similarly, air pollution is worsening, mainly due to increasing vehicle emissions and growing industry. The World Bank (1994) reports that outputs of particulates, sulfur oxides and nitrogen oxides increased fivefold between 1975 and 1988 in Indonesia's cities; and that Java's industry contributes about two thirds of the nation's toxic pollutant load, with total pollution loads estimated to grow six fold between 1995 and 2010. The same report estimates that between 15% and 40% of the total volume of solid wastes generated in cities go uncollected. Further, more than two million tons per year of hazardous waste are generated in cities of Western Java, although there exists a single facility to manage them. There is no doubt that that this escalating and uncontrolled environmental degradation of Indonesia's cities is undermining the physical and social basis for further economic growth.

### ***Tools for Management: Urban Policy and Environmental Law***

#### **Formal National Urban Policy**

Alongside this body of national development policy there exist Indonesia's formal urban policies and plans. These have gone through a number of phases, most of which have emphasized physical planning and the financial and management aspects of urban infrastructure and service provision. Early spatial policies aimed at equalizing population distribution and reversing polarization included transmigration, residency and trade controls on Jakarta, and developing alternative 'growth centers' to deflect growth away from Jakarta. However the ongoing development emphasis on Java, and relative neglect

of rural areas largely vitiated such initiatives. Subsequent to this, policies and programs primarily focused upon infrastructure provision and services via a 'basic needs' orientation. The *Kampung* Improvement Program (KIP), which began in the late 1960s, was a small-scale physical improvements program, targeting selected areas within major cities (particularly Jakarta and Surabaya). The program provided infrastructure and small-scale services to neighborhoods, based upon a 'community self help' approach utilizing contributions of labor and resources by local communities. Later, through massive infusions of foreign assistance the program was subsequently expanded to other cities and sporadically incorporated into the national development strategy. Through the late 1980s, KIP programs provided paved roads, drainage, public toilets, washing and bathing facilities, drinking water, health facilities and solid waste management to neighborhoods in dozens of cities.

Following the lead of international donors, the dominant policy focus in the early 1980s shifted to an 'urban project' approach to city development,<sup>11</sup> then subsequently into an urban infrastructure development emphasis, albeit one which called for more coordinated efforts nationwide (Lowry 1990:16). Since then a multitude of programs aimed at urban housing and infrastructure, health care and associated services been generated (Suriaatmadja and Harger 1993, Sloan and Sugandhy 1994, Soerjani 1982, UNDP 1994). Some of the major initiatives for urban development are shown as Table 4.1.

---

<sup>11</sup> These were programs which focused on mitigating the impacts of urbanization: inadequate potable water, lack of sanitation and drainages and flooding, etc.

**Table 4.1. Major Programs for Urban Management, Indonesia.**

| <b>PROGRAM</b>   | <b>FUNDING / MGMT</b>  |
|--|------------------------|
| KIP ( <i>Kampung</i> Improvement Program)  | Multiple donors/ mgrs  |
| Urban V Program  | World Bank             |
| City Urban Development Projects<br>(Bandung, Medan)  | Asian Development Bank |
| NUDS<br>(National Urban Development Strategy)  | UNDP                   |
| IUIDP (Integrated Urban Infrastructure<br>Development Programmes) Also known as<br>P3KT (Program <i>Pembangunan Prasarana Kota<br/>Terpadu</i> ) | UNDP                   |
| MEIP (Metropolitan Environmental<br>Improvement Programme)   | UNDP, World Bank       |
| Housing and Settlement Monitoring  | Public Works Ministry  |
| Municipal Finance Project &<br>Indonesia Clean Industrial Production   | USAID                  |
| K3 (Discipline, Cleanliness and Beautification),<br>'Clean City' (Adipura) program   | Home Affairs Ministry  |

Large scale spatial planning of urban areas also continues, mainly in the form of regional and metropolitan development and land use plans. Such plans typically address environmental factors such as existing resources (water, land, forest), land capability and suitability (hazards, flood, pollution, soils and geology, presence of sensitive ecosystems, and so forth), and housing availability, density and condition.

#### Environmental Law and the Urban Environment

Recent developments in environmental policy and law have also contributed to the tools available for managing cities. In Indonesia, the environment became a significant political topic in the 1980s, at which time hundreds of environmental Non-Governmental Organizations (NGOs) were established and many environmental laws passed; including Indonesia's framework environmental law, Law Number 4 of 1982 on Basic Provisions for Managing the Environment.<sup>12</sup> This law, recently updated in 1997 (Law 23 of 1997 Concerning the Management of the Living Environment) effectively defines national environmental policy. The law affirms the right of every person to a healthy environment, and the obligation of government to preserve environmental functions and combat environmental pollution. It also reserves the control of all natural resources to the state, and mandates that these resources are to be developed by the government for the greatest possible public good. This law also defines appropriate management and regulatory tools, enforcement measures and the role of local community. Key measures provided for environmental management include Environmental Impact Analysis (*Analisis Mengenai*

*Dampak Lingkungan* or AMDAL) requirement, environmental performance standards, concepts of mitigation, 'polluter pays' principle, and government assistance for localities lacking the resources for pollution prevention. Economic inducements and sanctions to promote environmentally sensitive development and compensate victims of environmental damage are also provided. Participation by local communities and NGOs is to be promoted through various types of networking and education programs provided by *Bappedal*.

Alongside this act numerous other laws for watershed protection, pollution control, endangered species protection and coastal zone management have been passed. Approximately 19 million hectares have been set aside as parks and reserves, 30 million hectares are classified as permanent protection forests, and more than 20 million hectares are designated as marine conservation areas. Some major policies and laws supporting urban environmental management are summarized as Table 4.2.

Notwithstanding these impressive advances in the areas of urban policy and environmental policy, there exist neither a clearly defined strategy nor a designated authority for managing the urban environment. Furthermore, as we have seen, many of the laws and policies that do exist are also considered unenforceable or otherwise

---

<sup>12</sup> For overviews of Indonesian environmental law and environmental politics see Cribb 1988, 1990; MacAndrews 1994, Djajadiningrat 1994, Boardman and Shaw 1995.

**Table 4.2. Major National Environmental Regulation and Programs.**

| <b>PROGRAM</b>  | <b>DESCRIPTION</b>  |
|---|---|
| Environmental Management Act  | Framework Law 1997: establishes rights, obligations, management and regulatory tools, public participation                                |
| Water Pollution Control Act   | Control of pollution via licensing, standards   |
| Land Use (spatial) Planning Act   | 1992, provides for preparation of plans, identification and protection of critical and sensitive systems, and guided urban sector growth. |
| Blue Sky Program  | Bapedal 1992, regulation of stationary pollution sources for 5 largest cities.  |
| Clean Technology  | Bapedal strategy for Cleaner Production Program, includes waste reduction audits  |
| Other National Pollution Standards and Control  | Bapedal 1995, standards for 24 industry subsectors.   |
| Clean River Program ( <i>Prokasi</i> )  | Environmental Ministry, Bappeda, University, NGOs, local managers, multiple management objectives, including MOA with all local industry. |
| Industry Environmental Audit  | Guidelines for implementing environmental audits 1999/  |
| Industry Performance Rating   | Bapedal 1995, public rating system on environmental compliance and performance.   |
| AMDAL ( <i>Analysis Mengenai Dampak Lingkungan</i> )<br>Environmental Impact Analysis | Bapedal, Environmental Ministry, 1993 requirement for environmental assessments.  |
| Toxics and Hazardous Waste Management   | Hazardous Substances Ordinance 1949; Bapedal 1994 standards.  |
| Coastal Management Initiative ( <i>Program Laut Lestari</i> )                         | Environmental Ministry/Bappenas 1992.   |

impracticable, as a result of a combined weak legal system,<sup>13</sup> overlapping agency jurisdictions, regulatory gaps, and priority conflicts. Even basic data concerning the nation's urban pollutant loads and resultant health risks are unavailable, due to ambiguities regarding agency authority for monitoring impacts and compiling data<sup>14</sup> and financial constraints. Moreover, the enforcement of existing laws at the local level continues to fall mainly to the police or army – entities which remain largely unacquainted with, or uncommitted to, Indonesia's body of land use and environmental law (Surbakti 1999:71). Thus, present environmental policy and laws represent at best a simulacrum of reform.

### ***Krismon and Its Effects***

In July 1997, the Asian financial crisis began, a chain reaction which began with the collapse of Thailand's currency. In actively pursuing rapid economic growth via policies favoring expansions of exports and industry propelled by direct foreign investment, Thailand and many other economically-interconnected countries of Asia had for several decades been caught up in a rush to deregulate and woo foreign capital. The widespread deregulation with abandonment or relaxing of controls on financial institutions

---

<sup>13</sup> Not only is the law uncertain regarding criminal liability (governed by multiple codes) but judges are subject to intense pressures from various agencies, political parties, business, and other vested interests. Bringing a suit is expensive and the success rate of environmental cases is poor. For example, The Indonesian Center for Environmental Law (1998) notes that between 1988 and 1994, not one of 24 environmental cases brought by local communities succeeded. Prosecution of environmental offenses is further hampered by an absence of public disclosure laws.

<sup>14</sup> As an example, in the case of urban water quality, surface water is the purview of Public Works but groundwater is monitored by the Ministry of Mines and Energy, while the Clean Rivers program is carried out by a joint provincial team from Bappeda, the Environmental Ministry, university and other research units, and local water quality managers from Public Works. Monitoring of water quality of industrial firms is conducted by the Ministry of Industry.

and a long period of easy access to low interest loans (often in US dollars), produced bubble economies across Asia based upon speculation in markets and unproductive assets. The boom was also partly fuelled by government-backed mega-projects such as dams and airports.

Falling currency values triggered by the floating of the Thai baht in July 1997 created a crisis of capital, and a rush to dump baht for dollars, provoking further devaluations and triggering a contraction of lending across the region. Weeks later, the floating of Indonesia's rupiah also encountered sharp devaluations and mass-scale dumping of rupiah for dollars. As banks across the region called in loans, raised interest rates and curtailed lending, the magnitude of unsecured and unproductive loans became apparent.<sup>15</sup> In Indonesia alone, private and state companies held an estimated \$80 billion in debt in 1997. Indonesia's falling rupiah, weak over-extended banks and mountains of accumulated foreign debt quickly drove the economy into collapse (Table 4.3).

Production declined steeply and hundreds of national and private businesses and twenty-three banks, including three state banks, were closed (Chandra 1998). By the end of 1998, inflation topped 78%, and an estimated 18 to 21 percent of the workforce was unemployed (ADFAT 2000). The crisis plunged millions below the poverty line (Figure 4.4). The Indonesian National Bureau of Statistics (BPS 1999) estimated that the number of Indonesian living in poverty rose from 22 million or 12% in 1996 to over 79 million (43%) in 1998 and 100 million or 48% by 1999. According to the Australian Foreign

---

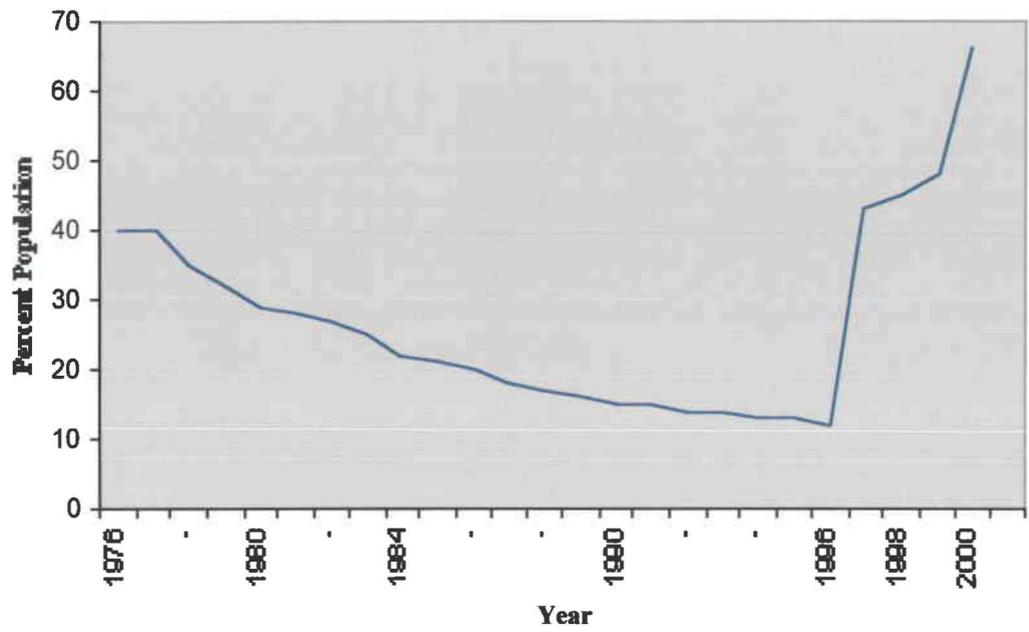
<sup>15</sup> With investment, production and marketing diffused through global networks, the effects of the crisis were by no means confined to Asia. Ripples were felt not only in Japan, Korea, Singapore and Hong Kong, but also the United States, Europe, Australia and other major economies elsewhere.

**Table 4.3. National Debt as Percentage of GDP.**

| <b>YEAR</b> | <b>DEBT (% GDP)</b> |
|-------------|---------------------|
| 1980        | 27                  |
| 1985        | 42                  |
| 1990        | 61                  |
| 1995        | 62                  |
| 1998        | 151                 |
| 1999        | 103                 |
| 2000        | 89                  |

Sources: World Bank World Tables, Online Database 2000; ADFAT 2000.

**Indonesians Below the Poverty Line.**



**Figure 4.4. Indonesians Below the Poverty Line**

Sources: ADFAT 2000, BPS Indonesia 1999.

Affairs Ministry this number grew to 66% by 2000. By early 1999 approximately 47 million people faced food shortages. Demonstrations and rioting occurred in nearly every province as a result of currency depreciation and rapidly rising prices of basic food staples and consumer commodities. Continuing hardship and the inability of government to maintain controls led to the reawakening of long-standing religious, ethnic and class conflicts. As a result, since 1998 violence has plagued many parts of Indonesia, with hundreds of deaths in Maluku and thousands nationwide. Moreover, a sluggish economy and government's obligation to service the expanded public debt continue to constrain investment in crucial areas such as infrastructure, health care, education and the environment.

## **REGIONAL ASPECTS OF URBAN ENVIRONMENTAL MANAGEMENT**

The central government structure maintains strong controls over, and thus largely determines the nature of, development planning and its implementation in the provinces. This takes the form of a centralized structure of patron-client relations in the bureaucracy, a structure inherited from Indonesia's colonial past. This system has historically reinforced the ongoing dependence of provinces and suppressed dissent (and innovation) at the local level. In spite of national policy describing Indonesia's system of national and international linkages as a decentralized structure, the strongest linkages remain from enclaves to primary centers and (increasingly) to international markets, rather than

between neighboring provinces. Incoming revenues derived from outer-island exports and concessions (as well as taxes collected by the regions) flow directly to the country's central finance office in Jakarta, to be redistributed nationally. Proportionately larger pieces of the pie have gone to large population and production centers, especially Jakarta. An average of 75% of total provincial revenues (and approximately 80% of Maluku's revenues), are transfers from the central government (Nas 1995, BPS Indonesia 1999). The impetus for planning likewise also emanates from the center. Neither provincial nor municipal offices possess authority to instigate urban management programs or regulate the urban environment. Under Law No. 5 of 1974, which establishes provincial governments in Indonesia, provincial governors are appointed by the president and provincial authorities are to exercise only those powers formally granted to them by the central government. Although a modicum of revenue-generating authority has been granted to the regional and local levels, urban planning activities remain essentially a top down process, with programs and projects at the provincial level formulated by planners at Bappenas and the sectoral line agencies in Jakarta.

As described by Schwarz (1994: 246):

The National Department of Home Affairs, acting through the governors, has responsibility for *supervising and supporting all development activities carried out in the provinces... In theory..* Regional Development Planning and Implementation is to be a 'bottom-up' process as established in Law No. 9 of 1982. According to this regulation, the mechanism of establishing annual and five-year plans should consist of eight stages of participation, beginning from the level of the village level and moving up to the national level. However the extremely hierarchical structure of

government and centralized financial and administrative control prevents this 'bottom up' planning from taking place.

The Regional Development Planning Boards (*Bappeda*) developed to strengthen regional government in planning and coordinating development programs are housed in the Provincial Governor's office (*Kantor Wilayah* or *Kanwil*). Tasked with organizing and carrying out planning at the regional level, *Bappeda* is nevertheless often unable to play a strong role. This inability stems from several sources including the unequal strength and autonomy of line agencies; *Bappeda*'s lack of authority to make regional policy or to regulate; and a lack of resources for conducting research and monitoring conditions.

According to Jones (1994: 26):

In theory *Bappeda* should perform a number of functions: developing the basic pattern for regional development; proposing annual programs such as for the implementation of the *Repelita*; coordinating planning between the various *Dinas* and offices under the provincial government as well as sectoral agencies; proposing the regional budget; conducting research, and monitoring the implementation of regional development. In practice, however, much of its imperatives and impetus come from above.

In practice, urban development activities at the provincial level fall into three categories: (1) activities and programs implemented by government sectoral line agencies at the regional level with much of the planning, implementation, control and financial support emanating from the central government; (2) development activities funded and implemented by the regency-level technical offices (*Dinas*); and (3) nationally funded specially targeted projects for municipalities. Examples of these latter activities are the presidential *Inpres* projects that are implemented via the Ministry of Home Affairs by

the provincial government agencies, but occasionally directly awarded as block grants. Such grants may be awarded for urban projects such as flood control, road construction and repair, electrical power generation, food distribution, housing, and solid waste management (Suhandjaja 1991).

### ***Urban Development in Maluku Province***

Since Indonesian nationhood, Maluku province (Figure 1.1) has maintained a weak position in the national hierarchy, along with the rest of Eastern Indonesia which is composed of a myriad of minority ethnic-linguistic groups and religions. Eastern Indonesia remained peripheral to the cultural and economic development operations of the state until the adoption of export-base development policy, when the resource-rich region was targeted as a key focus in the national strategy. In government-issued bulletins for prospective foreign investors, Maluku province continues to be depicted as a frontier brimming with 'new' extractive resources – in particular, timber, fishery resources, minerals and plantation products (PPKTIM 1997).<sup>16</sup> Since the 1950s, Maluku and other provinces of Eastern Indonesia have also been specifically designated as destination areas for transmigration programs.<sup>17</sup> Increased government investments in Maluku over the past three decades, which included expansions of infrastructure and services, created powerful attractions for migrants seeking better economic opportunities and greater

---

<sup>16</sup> As an illustration of the eagerness of government to promote resource extraction, in 1991 over half of Maluku's forest area was designated for harvest under 34 concessions. From 1984 to 1991 the total volume of fish harvested in Maluku by commercial trawlers more than doubled (see Monk et al., 1997).

<sup>17</sup> These programs are aimed at shifting population from high density, high unemployment areas of Indonesia to less populated areas.

access to services and amenities. As a result, in the period since the 1970s, populations in Maluku's two main port cities (Ambon and Ternate) have mushroomed. Most rural migrants to these cities come from other areas of Maluku or from neighboring provinces (BPS Maluku 1996, *Eastern Indonesia Population and Development Newsletter* 1996). Although urbanization figures for Maluku are unavailable, government statistics show that average rates of urbanization during the decades of the 1980s and 1990s were more than double for Eastern Indonesia as a whole than for those of other parts of the country (BPS Indonesia 1995a).<sup>18</sup> By 1995, the overall level of urbanization reached an estimated 25 to 30 percent (BPS Indonesia 1995b).

Generally speaking, the administrative structures and programs for urban development in Maluku follow the pattern and trajectory described above, with a majority of provincial urban development initiatives emanating from the center. While many regional 'comprehensive' plans for Maluku have been generated,<sup>19</sup> most of the urban development programs implemented in the province under KIP, NUDS, IUIDP, MEIP and others (see Table 4.1), have taken the form of piecemeal projects rather than comprehensive or long-range efforts. Further, post-*Krismon*, regional inequalities remain high, with government expected to have less money to allocate to poorer provinces than was the case before IMF reforms. In late 1999 regional per capital income for the Maluku province was about \$US 278, compared with a regional per capita income of approximately \$US 1,777 for the Jakarta area.

---

<sup>18</sup> Maluku's urban population growth rate reached 8.3 percent between 1980 and 1995.

<sup>19</sup> Although again, many of these are also generated by the center. For instance, the most recent Regional Spatial Plan for Maluku (2005) was generated at ITB-Bandung.

## **AMBON: THE FRAMEWORK OF EVERYDAY LIFE**

### ***Settlement Origins***

As the capital and seat of government for the Maluku province, Ambon City has a long history as an administrative and economic center for the region. According to Knaap (1991) and Grimes (1993), Ambon's beginnings were heterogeneous. The city's original pattern evolved not from existing villages (such as Reed's coastal city described in Chapter 1) or indigenous settlement patterns, but instead from an 'adapted European' pattern (Wheatley's urban imposition). As described by Reid (1980) such cities began as a cluster of settlements surrounding a court or harbor. Built upon a previously unoccupied site, Ambon was established as a frontier outpost by Europeans seeking to control the spice trade.

The city began in 1576 as a small fortress built by the Portuguese on the Bay of Ambon (Jacobs 1975, Valentijn 1724-26). The Portuguese fortress was captured in 1605 by the Dutch; who subsequently ruled over Ambon for nearly 350 years. The original settlement pattern was located along an estuarine site (the Batu Merah River) on Ambon Bay. The population living in the fortress consisted of the Dutch East Indies Company (*Vereenigde Oost-Indische Compagnie* or VOC) governor and staff, *burghers* ('free' citizens of various ethnicities serving the Dutch state and VOC) and slaves; while foreign merchants and small traders (mostly Chinese, Arab, Bugis and Makassarese) lived in separate quarters in the areas adjoining the fort (Chauvel 1980). The central areas were linked by several main roads, which also served as drainages in the wet season. Beyond

these areas *orang negeri*, or local villagers, created fringe settlements in areas (now neighborhoods of Ambon) that eventually came to be known by the name of the *negeri* (village) of those who occupied it.

Chauvel (1980:9) maintains that the existence of this diverse populace, dominated by a colonial bureaucracy and its single economic pursuit, rendered Ambon City the least "Ambonese" part of the Ambonese islands.<sup>20</sup> This view is shared by Knaap (1991:5) who argues that, based upon 1695 census data showing a predominantly multi-ethnic slave population and less than a 5 percent Ambonese fraction, Ambon was from its inception a 'city of migrants'.

For more than a century, Ambon, as the Dutch administrative and economic capital of the region, was strongly integrated into the world economy as a major producer of spices (cloves, nutmeg and mace). After the Dutch spice monopoly collapsed in 1867, the market for spices became erratic and Ambon faded into economic obscurity. Although migration into the city continued, for the next 60, years Ambon grew very slowly.

In the early part of the twentieth century, however, two important changes occurred in Ambon's socio-spatial environment: the rise of an urban bureaucracy dominated by Christian Ambonese, and the associated expansion of Ambonese settlements in the central city. For decades, the Dutch had actively worked to suppress the power of Islam in the 'East Indies', a campaign in which Ambonese were targeted for conversion to Christianity (Andaya 1991). Many Ambonese readily accepted missionary

---

<sup>20</sup> These islands are Ambon, Saparua, Haruku, Nusa Laut and southwestern Ceram.

education and recruitment<sup>21</sup> which ensured upward mobility and status for them. The Dutch government, which took possession after the collapse of the VOC, continued to manage Ambon as a trading post and administrative center. The focus of Dutch colonial policy increasingly shifted away from extractive commerce and toward 'developmental' activities including education and military training (Nas 1986). Christian Ambonese were given preference in these activities and generally remained the favored group of the Dutch (Chauvel 1980:8).

The Dutch project of the early 1900s also marked a period of continued heavy pressures for assimilation of subaltern groups - Buginese, Butonese, 'Moluccans' and others – into a European way of life. New settlement patterns, a common language, schooling and Dutch law challenged the traditional culture of each separate group. From 1920 forward Ambonese were preferentially incorporated into the administrative structure as bureaucrats, teachers, soldiers and clergy.

The Ambonese also maintained something of an advantage in numbers. In 1930 the population of Ambon city was estimated to be 17,334 people, of which 43% were Ambonese, 35% 'Indonesians' (largely Butonese), 11% European and 11% Chinese (Uneputty 1972). This trend continued until Indonesian nationhood, at which time the better-educated and better-trained Christian Ambonese prevailed not only in the civil service sector but also in trade. A second expansion of the bureaucracy in the 1960s and

---

<sup>21</sup> By 1700 there were already 54 missionary schools with 4700 pupils, representing approximately 30-40% of Christian children. By the 1800s, missionary education was highly valued by Christian Ambonese (Chauvel 1980:25-26).

1970s also involved proportionately more Ambonese than other groups.<sup>22</sup> For several decades this dominant group exerted a powerful influence on Ambon's urban culture and its reputation as a exotic frontier town.

Yet the relative status positions of Christians and Muslims were eventually reversed. This pendulum swing was a combined result of the Indonesian government's support of Islam, immigration, and changes in education. The Indonesian state since the 1970s has favored Muslims in civil service, and promoted Islamic religion in the schools. Increased educational and other opportunities for Muslims gradually resulted in the emergence of a new educated elite and a sense of increased status. Gradually, most of the influential bureaucratic and military positions in Ambon have come to be filled by Muslim appointees; many 'outsiders' from Java and other provinces. At the same time, global and national shifts in political economy of the 1970s and 1980s resulted in waves of migrants, mainly Muslims from Sulawesi and Java, to Ambon City (McBeth 1999). By the closing decades of the twentieth century, Ambonese had become a minority segment of the urban population<sup>23</sup> (Table 4.4) and the privileged position of Ambonese Christians faded (Table 4.5) (McBeth 1999, BPS Kotamadya Ambon 1997).

---

<sup>22</sup> Although the Ambonese dominated in numbers, the upper ranks of the bureaucratic hierarchy were historically filled by Javanese military, through a government patronage system.

<sup>23</sup> Island-wide, Christian Ambonese still represented about 58 percent of the population.

**Table 4.4. Profile of Ambon City's Ethnic Groups, 1996.**

| <b>ETHNIC GROUP</b>                          | <b>PERCENTAGE</b> |
|--|-------------------|
| Ambonese                                     | 34%               |
| Butonese                                     | 22%               |
| Buginese                                     | 20%               |
| Other Sulawesi<br>(Makassarese, Torajan etc) | 10%               |
| Javanese                                     | 10%               |
| 'Chinese'                                    | 3%                |
| Balinese                                     | 1%                |

Source: BPSKSKA 1996.

**Table 4.5. Profile of Ambon's Religious Groups, 1996.**

| <b>RELIGION</b>  | <b>PERCENTAGE</b> |
|------------------|-------------------|
| <i>Christian</i> | 53.5%             |
| Catholic         | 5.2%              |
| Muslim           | 41.1%             |
| <i>Buddhist</i>  | 0.1%              |
| Hindu            | 0.1%              |

Source: BPSKSKA 1996:143.

### ***Rapid Growth***

Indonesia's three decades of restructuring and associated measures to reorient its economy toward *global investment and trade* induced a period of rapid in-migration to Ambon City, resulting in unprecedented physical growth. Although Ambon has remained weakly integrated into national and international economies, since 1970 the city has sustained the highest urban population growth rates in the province,<sup>24</sup> and has more than tripled in size (Figure 4.5). Absorbing an ever-increasing share of the region's urban population, as previously noted, Ambon is presently four times the size of the next largest city of the province (BPS Maluku 1996, Bappenas 1997). Surges in migration were driven by the national development policies promoting exports and foreign capital. Here, attention was turned to Eastern Indonesia for the opening up of 'new' extractive resources (Meyer and Hardjodimedjo 1989, Jones and Raharjo 1995:32, BKPM 1996). In Maluku province, timber and timber products, fishery resources, minerals and plantation products were the targeted commodities for accelerated extraction, while Ambon City was the focus of extensive port and infrastructure development (PPDTIM 1992, PPDTIM - Pariwisata 1997). An accelerated promotion of Maluku as a transmigration destination began in the late 1970s (Goss 1992); followed by media campaigns exhorting investors and those of entrepreneurial spirit to 'Go East' to this new frontier in the 1980s (DTRIKWPM 1992/1993).

A contemporary Maluku provincial tourism office brochure describes Ambon today as a '...bustling hub and centre of trade, education, culture and administration.'

(PPDTIM-Pariwisata). Nevertheless, a majority of its urban residents fall into the poor or near-poor categories (Table 4.6). Today, Ambon's primary economic activities are trading and vending (accounting for approximately 25% of gross domestic income and 35% of employment); services, including government (18% of income and 43% of employment); agriculture (17% of income and 8 percent of employment); manufacturing (9 percent of income and 5 percent of employment); and finance (12% of income and one percent of employment) (BPS Kotamadya Ambon 1997).

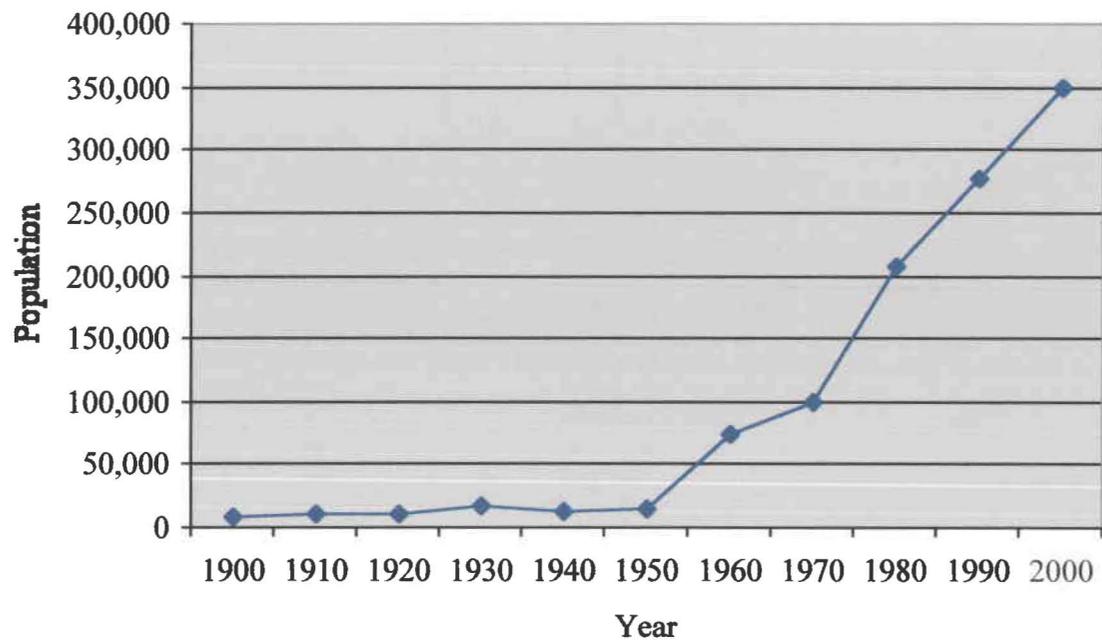
### ***Contemporary Kotamadya Ambon - Settlement Patterns and Characteristics***

Ambon became a *kotamadya* (municipality) in 1979 at which time its neighborhood boundaries were formally established by the government of Indonesia (PPKM 1992). Table 4.7 shows the areal designations, approximate population neighborhood data for 1998. Today, the *kotamadya* of Ambon encompasses 46 designated neighborhoods, 17 of which are located in the central urbanized area. The neighborhood units of administration – *kelurahan* ('urban' units of the city) and *kedesaan* ('rural' units of the city) – are roughly based upon pre-existing divisions established during Dutch and Japanese rule,<sup>25</sup> although in some high density areas boundaries were redrawn to create additional neighborhood units.

---

<sup>24</sup> Average annual urban growth rates of over 8 percent for the period 1980-1990 are reported by the Government Statistics Office (BPS 1992).

<sup>25</sup> The Dutch *Wik* was a unit of taxation and management. The introduction in 1944 of neighborhood associations (*tonari gumi*) by Japanese strongly influenced the contemporary administrative structure. The present day *rukun tetangga* or RT is derived from this Japanese unit, and complements the *rukun warga* RW as units of neighborhood administration (Mac Andrews 1986:15). These formal units have among other things been used as ways of homogenizing and dealing with various ethnic groups.



**Figure 4.5 Ambon's Urban Population Growth 1900-2000.**

Note: Ambon Metropolitan Area was expanded from 4.2 km<sup>2</sup> to 300 km<sup>2</sup> in 1980.

**Sources:**

deGraaf, 1972; Chauvel, 1980; Tamaela 1972; Repelita VI Maluku 1994; BPS Propinsi Maluku 1997; BPS Indonesia 1991; BPS Website 2000, Rencana Umum Urbanisasi Ambon 1966.

**Table 4.6. Profile of Economic Groups 1997 – 1998.**

| <b>WEALTHY</b>  | <b>'MIDDLE' INCOME</b>  | <b>LOW INCOME</b>   |
|---|---|---|
| 5% of population  | 30% of population   | 65% of population   |
| Merchants of pearls, fish (tuna, etc), shark fin, trepang, gold, lumber, spices. Oil workers, govt. administrators, Middlemen for shipping, warehousing | Civil servants, teachers, middle administrators, professionals, Owners of stores, restaurants, hotels, transportation | Vendors, petty traders, laborers, becak drivers, domestic servants, other service and trade occupations |

Source: Interview with staff, Bappeda TK II, February 1998.

The imposition of geographic boundaries and their associated quasi-governmental structures binds together spatially and socially diverse groups having different religions, cultures and habits. Prior to the 1960s, these mixed settlements of Ambon are said to have been places where everyone knew one another and local family histories, and intermarriage occurred between different religious and ethnic groups. By the 1980s, a rapid influx of newcomers had transformed the setting to one where there was little knowledge and almost no interaction between Christians and Muslims. Many of the neighborhood units which had historically been ruled by Ambonese leadership

**Table 4.7. Ambon City Area, Population and Neighborhoods, 1998.**

|   |                                     |
|---|-------------------------------------|
| Metropolitan Area                         | 37,700 Ha (377 sq. km) <sup>a</sup> |
| Central District Area                     | 420 Ha (4.2 sq. km).                |
| Total Population                          | 349,000                             |
| Urban Central District Population         | 230,000                             |
| Number Of Neighborhoods:                  | 46                                  |
| Number Of Central District Neighborhoods: | 17                                  |
| Percent Population in Central Area        | 65                                  |

Source: BPSKSKA 1997  
a. projected population

were also, for the first time, headed by appointed Muslim neighborhood leaders.

In terms of its physical layout, vestiges of Dutch architecture and pattern are still visible in Ambon, although allied bombings destroyed much of the city during the Japanese occupation of 1943-45 (Weiss 1992). Settlements are of recent construction and simple design, punctuated by the occasional colonial era cobbled street, water distribution system, or Dutch-style house. The waterfront areas of the city are dominated by port and related activities, military installations and by Ambon's extensive and crowded pasar (markets). The 420-hectare (4.2 square km.) the city center has wide streets (re)named after Moluccan heroes and Indonesian military figures who fought against the Dutch. These streets are bordered by many government offices, banks, church complexes and large commercial buildings of concrete-and-brick construction. Older, low-rise buildings are interspersed with taller new hotels, bank buildings and shopping centers. Just outside the central area are several mosques, bordered by streets named after Sixteenth century Moluccan sultans (kings). At the edges of the city center are found the dense mixed residential areas of the poor and middle income groups. It is here in these marginal and lesser-served areas that nearly two-thirds of Ambon's population resides (Ketua Bappeda pers communication 1997). These are the most popular destination for new arrivals who come seeking employment and to trade in Ambon's markets..

At first glance, most residential areas appear as haphazardly arranged jumbles of low-rise permanent and semi-permanent housing. Upon closer examination, a number of tendencies are discernable. For example, the houses of wealthier residents often front on paved roadways, whereas those of poorer residents tend to be crowded together in less

accessible, less-well served areas. This reflects the intense competition for space that has occurred in recent decades, as well as a general policy of government non-intervention in illegal and nonconforming settlements. A few areas dominated by government housing and military barracks exhibit a more homogenous appearance.<sup>26</sup> Although many streets and paths of Ambon lack signage, individual neighborhoods and their sub-units are readily identified by government-issue signs posted at each residence, government office, school, church, mosque and business.

Most houses tend to follow one of three general construction types: more expensively built houses are block and stucco and have interior walls and concrete-and-tile flooring (approximately 1 percent of houses); mid-range houses are a combination of wood frame and block construction with full or partial concrete flooring (25-30 percent); and the third, most abundant type is constructed from multiple materials ranging from brick to wooden boards and corrugated metal to *gaba-gaba* (sago palm stalks), *atap* (sago leaf thatch), cardboard and wire mesh. Houses of all three types are often inhabited in a partial state of construction and finished in an ongoing process where interior walls, additional flooring, bathroom, kitchen etc. are gradually added over a period of years. About 70% of housing appears to be in poor condition.

The neighborhoods are also more than simply residential areas. Within them are found small daily markets where vendors gather, often in shifts at prearranged times, in

---

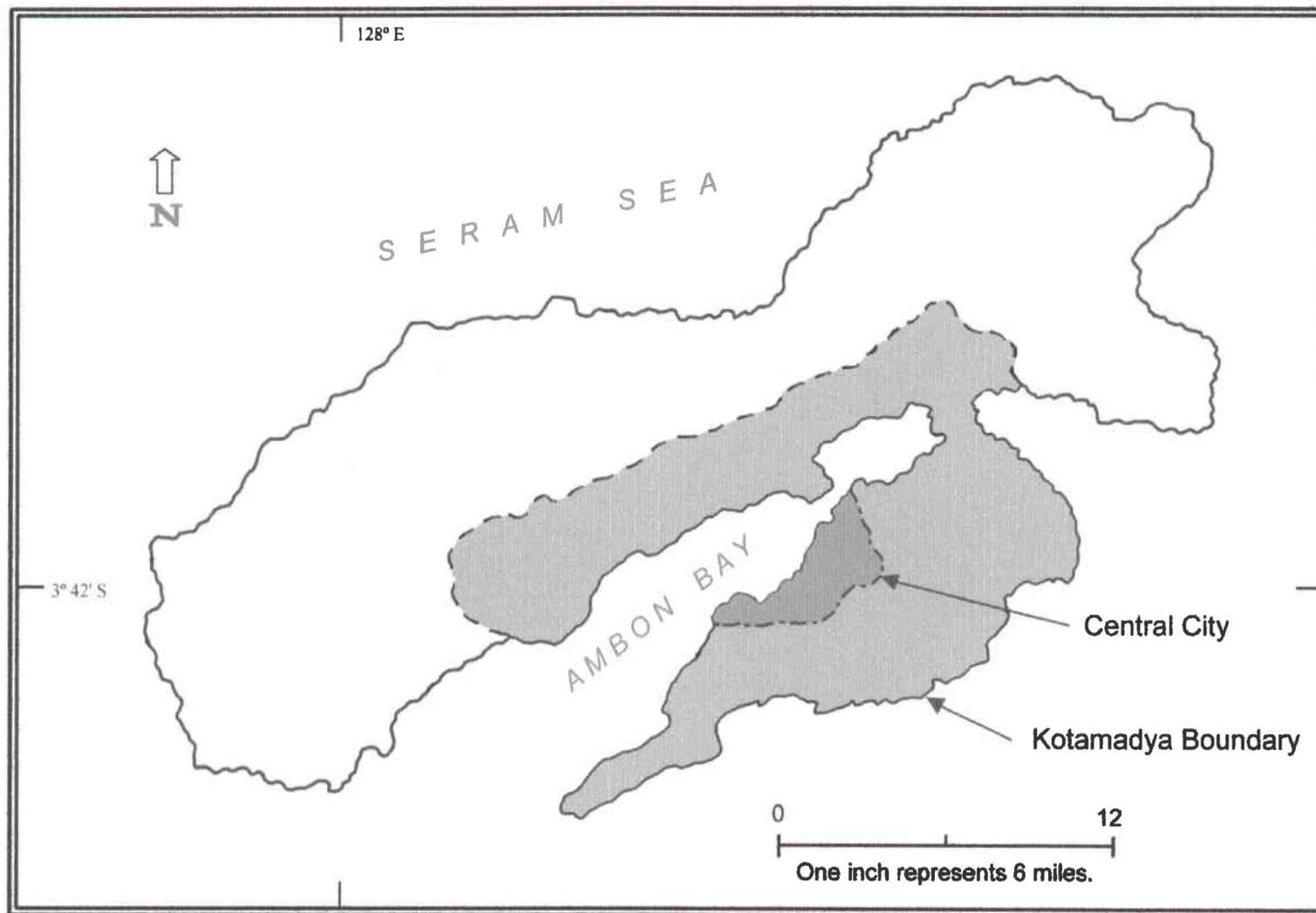
<sup>26</sup> Until the mid 1980s, subsidized housing was provided to all military and government workers. Government housing areas tend to be somewhat better served by roads, drainage systems and septic systems, although, as most everywhere, this infrastructure is in a deteriorating condition. In the past decade, the residential areas built for provincial authorities were markedly more luxurious than other subsidized developments for military and police, bureaucrats and local teachers.

streets, alleyways or other vacant areas. Other vendors travel through neighborhoods with rolling carts, shoulder baskets or head-carried baskets, selling staple goods and prepared foods. Even more common are small household commercial and industrial enterprises. *Kiosks* (small stands for selling sundries, dry goods, and staples) and *warungs*, (attached structures for selling beer and home-cooked foods,) are widespread throughout the city. Other households operate small industries such as garment making, small crafts, food processing, or furniture making.

Another economic activity commonly seen in Ambon's neighborhoods is *becak* (trishaw) transportation. Operators gather daily in designated 'terminal' areas in inner city neighborhoods, and many have well-established clientele from their own neighborhoods. Thus the structure of Ambon's neighborhoods, while far from orderly and equitable, retains certain outward similarities of residential types and economic activities across space.

### ***Ambon's Environmental Conditions***

Ambon island (Figure 4.6) measures 761 square kilometers; of which about 377 square kilometers – or roughly 45% – is presently designated as the metropolitan district (*kotamadya*) of Ambon (Figure 4.7). Ambon City is sited on a narrow strip of coastal land, consisting of low alluvial plains and adjacent upraised coral benches, which are crosscut by five rivers. Due to its small size and tightly linked biogeophysical systems,



Source: Bappeda Tk. I Maluku, 1996.

Figure 4.6. Ambon Island with City and Kotamadya Boundaries.



Source: Bappeda Tk. I Maluku, 1996.

Figure 4.7. Central Ambon, with Case Study Locations.

in effect, the entire island can be said to fall within the coastal zone. The dominant geographical feature of the city of Ambon is Ambon Bay, which nearly bisects the island. 23 kilometers long and averaging 3 kilometers in width, its waters comprise diverse estuarine and marine ecosystems including fringing coral reefs, seagrass beds, algae (seaweed) beds, and mangroves. The high productivity, multiple functions and interlinked nature of these ecosystems are well-documented (Hinrichsen 1998, Randall and Eldredge 1983, Rees 1992).

Celebrated in popular songs and conveyed via local media from billboards and television to tourist pamphlets, the city's motto '*Ambon Manise*' (beautiful Ambon), originally referred to the natural beauty surrounding the city: green forested hills, sandy beaches, and the blue waters and coral gardens of Ambon Bay. This is now mainly the stuff of legend, as this beauty has been all but lost to the ravages of urban activities. Urban-related processes of environmental degradation are rendered even more severe by naturally occurring climatic, hydrologic and geologic conditions. Positioned near the equator at 3°42' South Latitude, Ambon has a hot, humid monsoon climate with high rainfall. As is characteristic of many other coastal tropical environments, it also has unique and often fragile ecosystems; erodible and unstable soils; and distinct hydrological characteristics leading to high levels of stream sedimentation and periodic flash flooding. Badly obstructed river channels and an inadequate citywide drainage system exacerbate seasonal flood hazards. Most of lower Ambon, including all of the central city, is constructed upon active river floodplain areas, and thus is vulnerable to flood. Although efforts have been made to create flood channels, large floods occur every one to two

years, causing substantial property loss and infrastructure damage. The city is also subject to frequent seismic activity, with more than 400 events recorded annually. With large populations of the poor living on the most hazardous sites: along rivers and on steep hillslopes, they are particularly vulnerable to disaster.

Although no citywide studies of environment have been conducted in Ambon, basic demographic and health statistics are collected regularly, and studies of certain specific environmental parameters are occasionally conducted. Of these latter studies perhaps most in-depth are those documenting changes in Ambon Bay and its ecosystems resulting from development of Ambon's port areas and three decades of urbanization.

Ambon Bay is a heavily used passage for marine transportation and fishing vessels. Besides the scheduled ferries crossing the bay, twenty to thirty ships and hundreds of small boats typically use Ambon Bay on a daily basis. While prohibited by law, releases of petroleum, chemicals and wastes by boats go unchecked, resulting in a constant film of oil and debris on the bay's surface and many shoreline areas (Evans et al. 1995).

Extensive dredging and coral mining activities in the harbor areas have been practiced since the colonial era. Meanwhile, other urban activities have intensified the assault, releasing solid wastes, sewage, chemicals and sediment into the bay. Known effects of these activities include *changed bottom characteristics, modified currents and water temperature, contaminated shellfish, badly damaged coral reefs and vegetation, declining fish populations and the degradation of nursery grounds for important*

commercial fisheries (FishInfo 1994, Soemodihardjo et al. 1987, Praseno et al. 1990, Ongkosongo 1991, Wenno et al. 1997, Day et al. 1993 Indah and Chasanah, 1997).<sup>27</sup>

Because of these findings, Ambon Bay was in 1997 designated by the National Institute of Sciences (*LIPIT*) and the Regional Planning Board (*Bappeda*) as a Critical Area for management purposes. However, although the city encircles the bay, this designation has not prompted special planning or remedial actions on the part of government.

Ambon's terrestrial systems have likewise undergone drastic changes, although only limited documentation exists and this is largely anecdotal rather than scientific. The shoreline has been extensively modified since 1970 through large-scale filling and by accelerated processes of erosion resulting from construction, dredging, coral mining, and harbor activities. Along the shoreline, areas formerly occupied by mangroves and other wetland vegetation are now filled to a level of three meters, paved and packed with boat docks, shops, markets and residences. The urban shoreline has been extensively hardened with seawalls to protect fill areas against ocean wave erosion, with the result that adjoining areas of sandy beach have been swept away. Once-forested coastal and river areas are now denuded of vegetation, creating a hot, dry, dusty urban environment.

Encroachment in designated upper watershed preservation areas has resulted in contamination of all main municipal water sources. Ambon's urban rivers, upon which a large proportion of the inhabitants depend for their water needs, have officially been classified as 'dead rivers' which cannot sustain life. Increasing sediment and pollutant

---

<sup>27</sup> A wealth of important research on Ambon Bay is compiled within four volumes of conference proceedings published by the LIPI Marine Resources Unit in Ambon (Soemodihardjo et al. 1987, Praseno

loads have accompanied rapid population growth and expansion of settlements. Although the lower reaches of all five rivers have been dredged and channelized in attempts to mitigate flood hazard, waterways nonetheless remain choked with sediment and urban wastes.

The city's storm drains are a main contributor of urban solid wastes, sewage, and market and industrial wastes to the riparian and marine environments. A recent consultant's study of Ambon's streams (JICA 1997) reported that:

*..downstream, BOD and COD (biological oxygen demand and chemical oxygen demand (two indicators of bacterial activity) are as high as that of raw sewage....Therefore, from a point of view of water quality it can be said that..they are no longer natural rivers but open sewers for domestic sewage. (italics added)*

The study further asserts that the water of most wells in Ambon is:

*..contaminated and unsuited to be used directly for drinking purposes according to the standards set by Ministry of Health Regulation No 416/MENKES/RLR/IX/1990. (italics added)*

As a result, regardless of source, all water must be boiled before drinking.

Problems have also arisen with the development of new water sources such as wells and groundwater areas in Ambon's coastal plain. Here development has consistently been offset by the rapid contamination of new sources. In addition, recent evidence of

---

et al. 1990, Ongkosongo 1991, Wenno et al. 1997). These volumes provide detailed research findings on important aspects of the bay's ecology, biology, geology, chemistry, hydrography and oceanography.

saltwater intrusion into the local ground water table indicates that the public supply may presently be overtaxed.

No monitoring of air quality occurs, although respiratory problems are reportedly the top-ranking health problem in Ambon. Air quality is under constant assault from automobile emissions,<sup>28</sup> dust from construction projects, burning of domestic wastes, a local landfill that is perpetually on fire (Jamlean 1990), and an annual smog season – a three month period where smoke from forest fires in adjacent regions hangs heavily over the island. In 1997 and 1998, which were drought years in Indonesia, such fires were extensive and prolonged. The ongoing exposure to thick smog and pollution constitutes a serious health threat to Ambon's population.

### ***Urban Infrastructure and Services***

Government spending on urban infrastructure and services in Ambon has not even remotely kept pace with population growth. Moreover, as discussed previously, the national agenda for urban environmental management as implemented in the remote provinces essentially boils down to physical planning and infrastructure provision, rather than a unified program for urban and environmental stewardship. In Ambon, large-scale infrastructure projects emanate from provincial departments which build and maintain major roadways, airports, power systems, and port systems with funds allocated from the central government. Most of these systems remain under-capacity and have begun to deteriorate with age.

Meanwhile the task of constructing and maintaining other everyday urban infrastructure and services is left to municipal and neighborhood governments and to residents themselves. The small central portion of the city, where most commercial and government functions occur, remains the best served in terms of infrastructure with piped water, electricity, solid waste collection, storm drains and some septic systems. Outside this area, with the exception of electricity, infrastructural works are unevenly distributed and unreliable.

### Sanitation

According to *Bappeda* officials, fewer than 25% of Ambon's households are connected to an approved sanitation system.<sup>29</sup> Sewerage systems are nonexistent in the city, with wastes routed either directly into waterways, or into ineffective septic systems which are often installed in sandy soil at the water table and/or tide level. Citywide, at least 30% of households have no toilet.

### Solid Waste

Solid waste is another ongoing problem. City statistics estimate that residents produce more than 1,500 cubic meters of solid waste per day, while city refuse systems are able to manage 850-870 per day (Kotamadya Ambon Dinas Kebersihan 1996). Ambon's solid waste management program, run by the Dinas Kebersihan (city cleaning

---

<sup>28</sup> The prevalent use of leaded gasoline also introduces lead in particulate form into soil and into Ambon Bay.

<sup>29</sup> Interviews conducted in March 1998.

office) began in the mid-1980s, although delays in funding postponed its start up until 1991. Thus far, less than half of the population is served by the system, although the city has managed to build more than 60 pickup stations and to tackle some of the most serious problems such as waste buildup in the inner city market areas. The city waste management division faces ongoing maintenance and budget crises, problems with cost-recovery (inadequate fee collection) as well as landfill space constraints. Meanwhile, households must cope with a daily waste stream, a task made more difficult by the growing consumption of plastics (especially bags) and other disposables. Although the practice is forbidden, many households continue to dispose of solid waste in rivers and storm drains. As a result decaying trash continually clogs the city's waterways and shoreline areas.

### Water

The city public works department of Ambon reports that about 26%<sup>30</sup> of Ambon's population is presently supplied with piped tap water by PDAM (*PD Air Minum*) water supply network. The city's antiquated piped water system is in poor condition, and line losses from leakage are high (JICA 1997:G10). Another 32% of the population reportedly purchases water from City PDAM trucks (DPUCKP 1996), while the remaining population is presumed to rely upon water sellers, local wells or river water. Although these statistics appear to indicate that about 60% of Ambon's

---

<sup>30</sup> Compare this with the 1997 figure of 8,408 residential PDAM customers as reported by the Provincial Statistics Office. This indicates that only about 12 percent of Ambon City's residences have piped water.

population obtains its drinking water from a (relatively) clean source, they fail to reveal that a vast number of urban households also use water from wells and rivers on a daily basis for uses such as bathing, laundry, and cleaning.

### Electricity

In the 1970s Indonesia's national rural electrification program came to Ambon. As a result, most urban households have access to electricity, although some portions of the city receive 220-volt power while others receive 110-volt power. In the central city area, aging portions of the electrical transmission system periodically fail. Most electricity consumed in Ambon's households is used for lighting. City streetlights are few, and are found only in the center of town and along major roadways. Individual neighborhoods must build and maintain their own neighborhood lighting systems.

### Health

Government documents cite improvements in resident health as a result of an increased number of health care facilities (hospitals, health posts, or *puskesmas- pusat kesehatan masyarakat*) and programs (inoculations, child nutrition programs, family planning and the like) (Walikotamadya Kepala Daerah Tk. II 1995). However, the suggestion that health conditions may be improving due to improved services appears less credible when consideration is given to the patterns of diseases currently found in Ambon. According to local clinic workers, Malaria is endemic and growing in prevalence,

---

However it is commonly recognized that a single pipe usually serves multiple households (e.g., water is

and HIV/AIDS is also posing a threat.<sup>31</sup> Diarrhea is also prevalent in many areas lacking sanitation and clean water. Ambon also has a history of periodic cholera outbreaks in flood years, with major incidences occurring in 1983 (at least 3,800 people), 1987 (at least 5,000 people), 1991 (at least 3,000 people) and 1995 (at least 700 people) (BPS Kantor Statistik Kotamadya Ambon 1983, 1991, 1997). Other serious and growing health problems include acute respiratory infections, hepatitis and pneumonia. In general, it appears that the increased exposure of populations to hazards and infectious disease associated with crowding and high density urban settlements is creating health problems which in sheer numbers offset the gains achieved by the *puskesmas*. Poverty may be a contributing factor: a combination of poor housing (no basic sanitation services, no clean water) and poor nutrition may result in a weakened populace more vulnerable to disease.

### ***City Level Urban Planning and Environmental Management***

The administrative structures and programs for city development in Ambon generally mirror those of provincial governments as described above. The municipal (*Kotamadya*) offices of the mayor (who is an appointee of the governor) include local *Bappeda* (Level II), public works, social-cultural, finance and others. Although an autonomous administration unit with implementing agencies (*Dinas*), the municipality possesses very little decision-making authority or revenue-producing ability, and therefore subsists mainly upon outside funding. Annual funding for the *Kotamadya*

---

shared within communities).

offices comes from three sources: local municipal revenues; an allocated city budget and/or the aforementioned *Inpres* block grants from the central government; and private investment. Because the governor's office relies upon national level departments and agencies as primary sources of policy, plans and funds, there is little impetus for the *Kanwil* to support local planning at the *Kotamadya* level. Meanwhile the *Kanwil* offices control most of the development budget for provincial and municipal *Bappeda* offices, and some other sectoral offices. *Kotamadya* offices become caught in ongoing power struggles among *Kanwil* agencies as well as among *Kanwil* and *Kabupaten* (district) agencies.

#### Programs Implemented in Ambon's Neighborhoods

There exist a large number of plans and regulations pertaining to land use, environmental protection and other areas of urban management in Ambon City (Badan Perencanaan Daerah (Bappeda) TK I Maluku 1991). These include land use regulations (including zoning), a cadastral system of land registration, laws regarding planning at every level, economic and fiscal tools, environmental impact assessment and management laws, watershed protection laws, and coastal management laws. Nor do Ambon's environmental problems go unnoticed by provincial and local government authorities, who continue to identify needed management actions. For example, recommendations in current regional spatial plans include the rehabilitation of critical lands, the normalization

---

<sup>31</sup> AIDS is said to be on the increase in Maluku, especially in Ambon, where foreign fishing fleets and commercial sex activities have provided the institutional foundation for the establishment of the disease. AIDs education is nonexistent, and statistics on HIV/AIDS in Ambon are unavailable.

of rivers and waterways (cleaning and flood management), drainage system improvements throughout the city, and conservation work in watershed areas. Housing and health are monitored, and as previously noted, the entire area of Ambon's two bays, which includes the urban district, have been designated as a critical area.

Yet as we have seen, despite the proliferation of urban and environmental management guidance tools, most go unimplemented. Instead, the majority of realized plans and projects in Ambon emanate piecemeal from the center and are mainly focused upon infrastructure and service provision.<sup>32</sup> Since the 1970s, KIP (*Kampung Improvement Program*) and other national urban renewal programs have provided resources for renovation of slum housing, installation of public toilets, and provision of paths and drainage. These programs were implemented in several underserved areas of the city, yet they scarcely made an impact such was the level of need. The national rural electrification program provided lines along all major city streets and hookups for most houses until 1979. In the 1980s, Ambon's largest waterfront markets, Pasar Mardika and Pasar Batu Merah, were upgraded with technical assistance and funding from the national Market Improvement Program (MIP). The shoreline was filled, streets were paved, drainage canals installed and three-storey concrete market buildings erected. In the early 1990s, Ambon's solid waste management program was launched and its drinking water collection and distribution system expanded through public works grants, while port

---

<sup>32</sup> Obtaining information on the full range of previous programs is problematical, due to fragmentation of responsibilities among and within agencies, poor record-keeping and staff turnovers. In addition, a review of city documents reveals a number of large scale infrastructure projects which, although planned in detail, have never been implemented. Among these are a large-scale housing redevelopment, (pilot) project for the poor, additional public housing; a sewer system to serve a portion of the city, and a city-wide piped water system.

facilities and main roads around the island were upgraded with funds for regional port/transportation improvement. Areas of public housing were also built in suburbs of Ambon, mainly to lodge provincial bureaucrats and teachers. At the neighborhood level, the city has continued to assist occasionally in the provision of public toilets and public wells.

Other, more proactive approaches to urban environmental management have also met with limited success. Local campaigns to raise public awareness about cleanliness and health deploy colorful billboards exhorting people to pick up their trash, mind their household's hygiene, practice birth control and immunize their children. The efficacy of such advertising is difficult to assess. National campaigns use catchy slogans, and rely on media coverage (mainly radio and signage) and promotions through neighborhood government to disseminate their messages. For example, each year the national government sponsors 'Clean City' competitions through the Ministry of Home Affairs to honor cities which practice effective environmental management. Ambon has twice received the Clean City award (*Adipura*) denoting its success in developing and implementing an urban 'cleanliness' plan and improving overall conditions of cleanliness. While this competition has raised awareness of cleanliness and organized the population to work together toward environmental management, its emphasis remains primarily on short-term and cosmetic aspects of 'cleanliness' (painting buildings, fences and curbs, planting attractive shrubs) rather than on providing improvements with longer-term consequences for urban quality of life or attacking root causes of urban poverty. A second national campaign *Prokasih* (the Clean River Program) is aimed at raising

awareness about river conservation. This program has been less than successful in Ambon, not only because the task of disseminating information has been delegated to neighborhood officials (who do little more than broadcast lists of prohibitions against water pollution) but also because viable alternatives to polluting rivers (e.g., waste management and sewer systems) remain unavailable.

***The Social and Institutional Context of Ambon's Neighborhoods:***

This final section examines some additional micro-level social, economic and political aspects of the setting of Ambon's neighborhoods -- key actors, institutions, structures, relations and other elements shaping everyday life at the local level.

Here, no attempt is made to sort these components into categories or levels nor to assign primacy to one or another aspect as I attempted to view neighborhood life as an integral whole, rather than try to identify various systematic parts and how they relate to one another. For example, an 'institution' (say marriage) is simultaneously viewed as a network of social relations, economic arrangements, political processes, cultural categories, norms, values, ideals, emotional patterns and so on. Thus, while the following identifies some important determining elements of everyday life, it does not conclude that they are measures or means by which to explain an overall 'system' or 'community' or 'way of life'. Instead they are seen as important parameters within dynamic networks of social relations.

### Neighborhood Organizational Structure

Perhaps the strongest apparatus for organizing social life at the neighborhood level is the neighborhood unit or *kelurahan/kedesaan*. As we saw at Figure 4.3, neighborhoods are derived from sub-sub-provincial units. Yet at the same time the *Kotamadya* and its agencies are municipal units established separately by the central government. This means that metropolitan-level agencies operate parallel to, but are seldom linked with, neighborhood government.<sup>33</sup>

The neighborhood structure itself is complex. Under Law 5 of 1979, the central government established *kabupaten* (regencies) headed by *bupati*.<sup>34</sup> These in turn are divided into *kecamatan* (wards) administered by *camat*. Below this administrative level fall the urban neighborhoods: *kelurahan* and *kedesaan*. Generally speaking, neighborhood governments must answer to all of these various higher levels. Heads of *kelurahan*, called *lurah*, are appointees of the *walikota* (mayor) while leaders of *kedesaan*, called *raja*, are elected by voting (elite) members of the neighborhood. Both administrative units are tasked with administering certain national programs. However, in the case of the *kelurahan*, all projects conducted via the *lurah* must be state-sanctioned whereas the office of the *raja* has somewhat more autonomy. The *lurah* may not make regulations or innovate without the order of the *camat* or a higher power. In contrast, a *raja* may make policy and regulations, and engage in almost any legal commercial activity. Of course, a

---

<sup>33</sup> This is a serious matter, as the city level entities retain little effective power to plan or regulate activities at the neighborhood level.

<sup>34</sup> The title of the *bupati* harkens back to early Hindu kingdoms of Java. *Bupati* were feudal lords who administered sub-regions of said kingdoms. This system was retained through subsequent Islamic empires and Dutch colonialism, and finally adopted by the new country of Indonesia.

*raja*'s power, including that held in territorial issues, may be easily subverted by other government agencies which simply decree other policy to be of a higher priority and thereby supercede existing local rule.

Below the *kelurahan* and *kedesaan* are two additional tiers of quasi-governmental administration which link residents to the state: *rukun warga* (RW) and *rukun tetangga* (RT). RTs comprise up to 120 households each. The larger units, RW, consist of two to seven RT, depending upon the population density of a particular area. The heads (*kepala*) of RW and RT are elected, although unpaid. As a whole, the RW-RT system serves to monitor the population, organize government development efforts and social tasks and maintain and perpetuate the values of Indonesian social life as per *Pancasila* democracy principles. Heads of RT and RW and the *lurah*'s office are also supposed to provide residents with a chain of information and access upwards to other levels of government.

Leadership acts as purveyor of development and *Pancasila* via a full array of neighborhood programs designed in Jakarta. Prominent among these are established neighborhood-level programs called LKMD (*Lembaga Ketahanan Masyarakat Desa* or Community Fortitude Institution) and PKK (*Pembinaan Kesejahtera Keluarga* or Foundations for Family Prosperity). These are established specifically as mobilization programs. At the level of the neighborhood, the *Lurah* heads the LKMD unit while his wife leads the PKK.

The LKMD is composed of the *Lurah* and an advisory committee of RW heads, to coordinate all aspects of neighborhood activities. These actors are theoretically in

charge of organizing security, monitoring and maintaining sanitation and other facilities, and identifying needy families or abused children. In practice, the day-to-day task of monitoring is delegated to the heads of RTs, whose involvement varies greatly depending upon the personalities and locations involved. The heads of RWs and RTs are also tasked with introducing and disseminating *Pancasila* ideology, acting as mobilizers in building and maintaining neighborhood facilities (trash pickup, wells, public lavatories etc), imbuing residents with a spirit of collective responsibility and unity, and collecting funds and taxes. Another key role of this system is the collection of information, especially during census enumerations, elections and registration procedures. Residents are required to register changes in residence, deaths, births, and annual school enrollment with the RT head, as well as report missing identity cards. Heads of RT and RW are also supposed to monitor home-building activities, land registration status, job registration and vehicle ownership.

PKK neighborhood programs monitor and address the economic, health, sanitation and family planning needs of families. PKK views the (nuclear family) household as a production unit and societal resource, and focuses mainly upon women as homemakers, child-rearers and community resources. Although PKK also includes an 'economic' component and promotes small enterprise activities for women, women are treated primarily as domestic homemakers. Other programs include child and maternal health, nutrition, immunization, family planning, assistance to the poor, gardening, *Pancasila* philosophy and 'cooperative thinking'.

Besides these 'formal' neighborhood functionaries (the *lurah*, *raja*, *ketua* RW and *ketua* RT), civil servants living in the neighborhoods make up an important 'informal' linkage with government. They are often called upon to communicate via the RW and RT heads, to donate money or volunteer for neighborhood improvement projects, and to write proposals for needed programs.

### Civil Service

In the era of high growth from 1970 to the late 1980s a large civil service class was established. As noted above, civil servants today make up one of the largest groups in Ambon's labor force. Jobs in the bureaucracy remain highly sought after, although increasingly difficult to find. Civil servants have high status and receive a wage, rice ration, health insurance and other benefits depending on gender, marital status, and number of children. At the same time they are also expected to be community leaders, contributing more than their fair share in everything from promoting community developments to paying more for the local soccer team uniforms. Throughout the Suharto regime, government employees also were expected to be active in government organizations, including *Golkar*, the national political party. At the same time, government salaries have remained low – 50,000 rupiah to 350,000 rupiah per month – and this expectation, coupled with the need to procure additional employment, often creates situations of high stress and low performance in bureaucrats.

### School

Education is an important aspect of city life, and as a perceived essential component of upward mobility is one of the ‘magnets’ which draws immigrants to Ambon. This is in spite of a large and growing structural mismatch between education supply and labor market demand in Indonesia. The Indonesian government promotes education, which is compulsory through age 12. Ambon's 169 public elementary and secondary schools are subsidized, and residents pay a small fee of 100 to 250 rupiah per month plus costs for books, uniforms, transportation and incidentals.

School represents a main arena of social interaction in Ambon, where children *form bonds and establish peer groups*. It is also a major conduit for dissemination of national ideology. Teaching is authoritarian and regimented: students are educated by rote and learn from an early age that the ‘government always knows best’. Courses in *Pancasila*, religion, government structure and functions, and English language are required. At the university level, academic life is de-politicized through a ban on all educational activities or materials deemed ‘political’, including anything critical of government and its *policies*.

### Religion

By law Indonesians are required to be officially registered as members of one of five state-sanctioned religions. In addition, government regulation requires one to marry within one’s faith.

Religion has a significant and powerful impact on many aspects of urban life. Religion classifies one into a certain grouping which has both benefits and restrictions on one's ability to influence and be influenced. For example, religion's strong influence on political appointments and bureaucratic relationships has already been noted. Church and mosque leaders enjoy high status and usually maintain strong affiliations with national political parties. Recent changes in the religious practices and institutions of both Christians and Muslims have promoted increased focus on religious as distinct from ethnic identification.<sup>35</sup> There has been rapid growth in numbers of places of worship. Between 1975 and 1984, the number of mosques grew from 8 to 65, while the number of Christian and Catholic churches grew from 30 to 80 (BPS Kotamadya Ambon 1983; 1991). The strong influence of religion in everyday life is also manifested in everyday household and business decor, in manner of dress, in the proliferation of Islamic schools (including an Islamic university), in huge annual celebrations of Christmas and Idul Fitri, in the enormous opulent complexes of Catholic and Protestant churches located in the city center, and in the statues of Christian resistance leaders who fought to end Dutch colonialism in Maluku.

### The Family and Gender

Family ties and kin relations remain extremely important to all groups in Ambon – for social security, food, shelter, child care, access to services and many other reasons.

---

<sup>35</sup> According to both Cooley (1962:87) and Chauvel (1980:143, 147) changes in religious practices also tended to de-emphasize traditional or *adat* influences which previously provided an element of cohesion for the two main religious communities.

Ambonese families in particular maintain a high degree of interaction, commonly sharing housing, food and other resources across large networks which may span several islands. For new migrants and circular migrants, the family is often an important source of investment and target of remittances.

Although in Eastern Indonesia, extended family ties remain strong, the nuclear family is promoted by Christian and Muslim religions and the state. Government has played a particularly large role in (re)constructing the family concept. While national law proclaims equality for men and women, Indonesian law and state ideology actively promote the role of males as main decision-makers and wage-earners and that of females as homemakers and child-rearers. The state's push to construct a modern Indonesian 'middle-class' family includes its involvement in shaping and defining what constitutes marriage, a family and dependents, as well as appropriate sex roles and behaviors within the family (practicing birth control, participating in gender-segregated neighborhood activities, and following certain patterns of consumption). The government bases its neighborhood programs on the family unit and the largest civil service benefit packages accrue to married men with two or less children, reinforcing male breadwinner role and status, as well as family planning.

### Language

Ambonese (or Ambonese Malay) is the everyday language of Ambon. As previously noted, Ambonese, rather than Indonesian, is the common language of

commerce and of everyday social interaction for a multitude of ethnic groups in the city.<sup>36</sup> Although, like Indonesian, Ambonese employs status markers (honorifics), it differs from the national language in its ease of access and informality of structure. Besides Ambonese, many regional *ibu bahasa* (mother tongues), Arabic, Dutch and Japanese are spoken in Ambon.

### Markets

Markets are a focal point of the city and everyday life. A large portion of Ambon's urban labor force (more than 60%, according to planning officials) is involved in vending and petty trading – activities often characterized by individual entrepreneurial or family enterprise. As a major sphere of social interaction, markets play an important role in social structure and urban development. In Ambon, markets provide the setting in which important networking occurs and relations are forged. For example, individuals who repeatedly buy from the same seller forge a relationship wherein price reductions, credit or other arrangements may be arranged. Vendors and traders at all levels, from the fast food seller to the kiosk owner to the cloth merchant, buy and sell from one another in a complex chain of exchange. Ongoing interactions including short term and long term credit arrangements create the basis for reciprocal links between trade partners.

There is also a hierarchy among vendors and traders, based upon the types and amounts of commodities being sold, and the types of finance arrangements required to

---

<sup>36</sup> Knaap (1987:118-121) also notes that Malay or Ambonese Malay was the official language of instruction in Dutch schools and eventually came to supplant the *bahasa tanah* or indigenous languages as the mother tongue of local Christians of Ambon.

obtain stock and location. For example, high-status sellers of clothing have complex trade relations with faraway suppliers and obtain long-term rental agreements for secure market space, as compared with small-scale retailers dealing in a single commodity (such as peanuts, eggs, or vegetables) obtained from a variety of local sources, who sell in the available space at the market fringes or on sidewalks.

Most households shop daily at the *pasar*, a practice which in part results from the practical need to obtain a critical item: fish. Fresh fish is the main source of protein in the local diet and is eaten daily – sometimes twice daily – in a majority of Ambon's households. As most households lack refrigeration, the daily trip has become a necessary habit. Fish is plentiful and cheap, which helps offset high inflationary rates and continuing high prices for other staples such as oil, rice, and sugar. Ambon's markets offer a stunning array of dozens of species, including tunas, mackerels, sardines, anchovies, scad, rockfish, parrotfish, grouper, mullet, cod, trevally and squid.

### Workplace/Occupation

Many workers identify with a specific occupational group. This tendency was most strongly observed among bureaucrats, becak drivers, vendors, and fishermen. Citywide there are at least 75 government office associations, 20 military associations, 11 municipal cooperatives, 26 professional cooperatives, three transportation worker cooperatives and three market cooperatives (Pemerintah Kotamadya Dati II Ambon Kandep Koperasi 1996:485). There are also separate cooperatives for fishermen,

students, handcrafters, tailors, electrical workers, women, veterans and pensioners<sup>37</sup>.

Economic activities have historically been stratified by ethnic group. Ambonese are most often associated with the civil service while Buginese and Makassarese have been recognized for centuries as seafarers and merchants. Ethnic Chinese are considered specialists in hotels and bulk imports and exports, and Javanese have come to dominate many top positions in government but also remain successful as market vendors, traders and middlemen. Butonese migrants from Southeast Sulawesi remain among the poorest, often working as market gardeners, vendors, becak drivers, construction workers and ship-builders.

#### Global Influences on Local Life

As in many other urban centers of Indonesia, residents in Ambon are increasingly exposed to international values and lifestyles (McChesney 1999). This is due to active government promotion of 'globalization' concepts (such as outward looking export-based development, and industrialization fuelled by foreign investment), as well as media exposure and access to the world wide web. Global corporations have brought western style commerce and a plethora of new technologies and products to Ambon, among them computers, ATMs, cellular phones, KFC, and Dunkin Donuts. An increasing number of satellite dish TV owners receive broadcast programming from CNN, Star TV and other foreign networks; and the internet offers broad access to a huge variety of subject material and alternative views and lifestyles.

---

<sup>37</sup> These are used to incorporate the existing group interests within the state's own framework. The state

Multinationals also exert an increasingly powerful influence on the spatial development of Ambon through the construction of malls, banking complexes, fast-food restaurants, supermarkets, and processing facilities. Other international influences on Ambon include a steady flow of foreign tourists, businesspeople, fishermen and consultants, and the occasional development project which brings the latter group to the region. Up until *Krismon* and the period of social conflict in Ambon, the city also had thousands of annual visitors and numerous expatriate residents, including those from Australia, Canada, The Netherlands, Britain, Japan, Korea, and the United States.

#### NGOs and Other Organizations

There is a conspicuous lack of autonomous NGOs in Ambon; the few truly 'non-governmental' (mainly international) NGOs in the area focus primarily on religious, health and development matters in rural areas outside the city.<sup>38</sup> Besides these there are many social, religious, political, economic and youth organizations operating at the level of the neighborhood which operate as quasi-governmental organizations. Tightly controlled and weak, these nevertheless frequently constitute the sole channel of political expression, for example many residents have turned to *Partisipasi Kristen Indonesia - Parkindo* (Indonesian Christian Participation), *Persatuan Nasional Indonesia* (National Association), *Ikatan Cendekiawan Muslim Indonesia*, (Association of Indonesian Muslim intellectuals), *Majelis Syarikat Ummat Muslim Indonesia* (United Council of Indonesian

---

maintains control through direct or indirect interventions in internal affairs.

<sup>38</sup> These include Doctors Without Borders, CIDA, Oxfam, and others.

Muslim Community), and *Yayasan Kerukunan Persaudaraan Kebangsaan* (Foundation for National Harmony and Brotherhood) (Eldridge 1989).

***Summary: The Context of Urban Environmental Management***

This chapter has presented an overview of macro- and meso- level influences (forces, processes, structures and actors) converging on daily life and *habitus* of residents of Ambon. The first two sections of this chapter outlined key aspects of global capitalism, colonial history, national policy and law, center - regional relations, settlement patterns and environment which condition daily life at the national level. The third section which focused upon the regional and metropolitan manifestations of these forces, showed how the manner in which Ambon was incorporated into a European-dominated international economic order has had important repercussions in terms of control over resources, cultural change, and the spatial pattern of urbanization at the local level.

Employed in many a political ecology study, this method of classification approaches structure and agency in terms of influences broken down into 'levels' categories such as 'international', 'regional' and 'metropolitan'. Although this approach comprises quite an artificial view, this tack is considered necessary to contend with the highly complex and heterogeneous nature of influences and relationships. Present local conditions are thus set against global, national and other developments, rooted in past colonial times, and which continue to influence the way that human-environmental interactions take place.

Ambon's role to provide spices for consumption in Europe and other markets resulted in shifts in land use, the growth of Ambon as a trade center, and the inflow of diverse peoples from many places. Colonial rule also resulted in (among other things) the establishment of Christianity, a militia, land ownership laws, a stratified labor force and a segregated residential pattern. Many of the spatial, political and administrative changes of the colonial regime were then carried over into the Indonesian state and subsequently influenced the manner in which it conducted its management of the environment. These are seen in patterns of land ownership, the centralized control of resources and in some respects the configuration and government of local neighborhoods.

Expanded state control of human-environmental interactions has also been effected through administrative and technical transformations since the nineteenth century. Ambon City's peripheral status is reinforced by its reliance upon the center for funding and the lack of a tax base at the local level. Today the state retains extensive control over the environment, and remains the primary developer of Ambon through the extension of the bureaucracy and the military, and through the expansion of ports, transportation, medical facilities and other infrastructure and services. Continuing technical developments (for example in weaponry, communications, transportation systems, maps and GIS) also serve to reinforce the power of the center. Meanwhile government policy of actively promoting in-migration to the region has intensified the 'magnet' effect created around Ambon by the state's developmental efforts.

A pattern of strong regulation, with origins in both colonial and modern states, also shapes social life. The government creed (*Pancasila*), transmitted via government

offices, schools, and the workplace, influences public ideas and perceptions concerning citizenship, status, work, education, the environment, land ownership, the family and gender relations, and attitudes concerning consumption and global capitalism. Meanwhile, continuing controls on labor, politics and civil liberties perpetuate a weak civil society.

The state also exerts control over access to resources and power through its societal prioritization of projects and environmental management initiatives. As we have seen, many of the development projects conducted in Ambon, are in some way associated with the targeted economic policy of natural resource exports. At the same time, other allocations for needed infrastructure, services, and environmental remediation associated with rapid urban growth have been slow in coming or absent altogether. At the neighborhood level, programs such as LKMD and PKK are integrated into the fabric of everyday life, whereas the systematic neglect of basic necessities such as clean water and sanitation continues. In light of recent crisis and Indonesia's ongoing economic recession, this systematic neglect of social and environmental concerns is likely to continue for some time, whilst outward-looking developmental efforts around exports and industrialization remain national priorities.

Continuing global influences on Ambon include the multi-national corporation, an unceasing stream of international media and products, the incorporation of small traders into international distribution networks, and (to a lesser extent), assistance from international non-governmental organizations and multilateral institutions. The rising importance of religion, in particular the global resurgence of Islam, also represent powerful influences on social interactions and material practices of residents.

Taken as a whole, the foregoing review suggests a national model of *habitus* gradually overlain by state-imposed codes of symbolism and communication as well as state-imposed routines in time and space. Although the nature of hegemony itself is always contestable – and certainly the discourses and practices of the Indonesian state are never wholly uncontested – the state’s project of homogenization, with its politics of depoliticization, corporatization and *Pancasila* ideology, appears to have achieved widespread success. Its role in the perpetuation of hierarchical cultural forms is also indisputable. Strong associations of state economic and political fields of influence with religious fields of power are also apparent, although in this regard identity and status may be increasingly subject to international rather than national influences.

In contrast, the case for modern global capitalism as a hierarchical, homogenizing or convergent force appears less clear-cut. On one hand, there is no doubt that globalization and competition for foreign investment and trade have far-reaching effects (for example act to shift populations, and drag down social and environmental commitments of governments). It is also the case that Ambon as a marketing center and as a regional port continues to take on an increasingly ‘international character’, as the numbers of new ideas, products, businesses and opportunities for linkages (especially via markets, communications and information technologies) continue to expand. On the other hand, the existence of manifold variations in the number and reach of these new global influences and the ways in which these are mediated, transformed and incorporated (or not) into ‘everyday established routines’ at the local level may vitiate any generalized analysis of impacts. For power-laden as global flows and influences may be, local social

groups with variant relations to these flows and influences may also redefine or reassert their political and cultural boundaries vis-à-vis other actors or actants. Thus, any consideration of *habitus* as a product of 'globalization' or global forces requires a context specific, micro-level investigation of ways in which forces converge upon and are mediated by local actors (households and groups) (Bourdieu 1997:197).

The following chapter now turns to these micro-level aspects of local existence in Ambon. Empirical findings regarding household and neighborhood conditions and relations *vis-a-vis* environmental management in the two case study neighborhoods are presented and discussed.

## CHAPTER 5

### ENVIRONMENTAL CONDITIONS AND LOCAL RESPONSE IN TWO

#### NEIGHBORHOODS: BATU MERAH AND WAIHAONG

Having reviewed dominant aspects of politics, economy and culture at the international, national and regional levels via a more-or-less structuralist perspective which considers the influence of these forces on the individual's everyday thought and action, this chapter now examines the micro-level setting of the neighborhood and moves to additionally incorporate a more poststructuralist view of the details of local existence which sees social relations as encompassing networks in which group organizing action takes place.

The chapter is in two parts. The first section presents the empirical findings concerning the *conditions of existence* in the two case study neighborhoods. Integrating findings from household surveys, interviews, researcher observations and environmental field surveys, it profiles the sample populations and compares the two neighborhoods in terms of historical development, social characteristics and present environmental conditions. Resident perceptions of environmental problems and reported levels of satisfaction with existing conditions are then described, and considered as markers of shared structural dispositions (*habitus*). The second section summarizes key types of environmental management arrangements in which households and groups engage, and

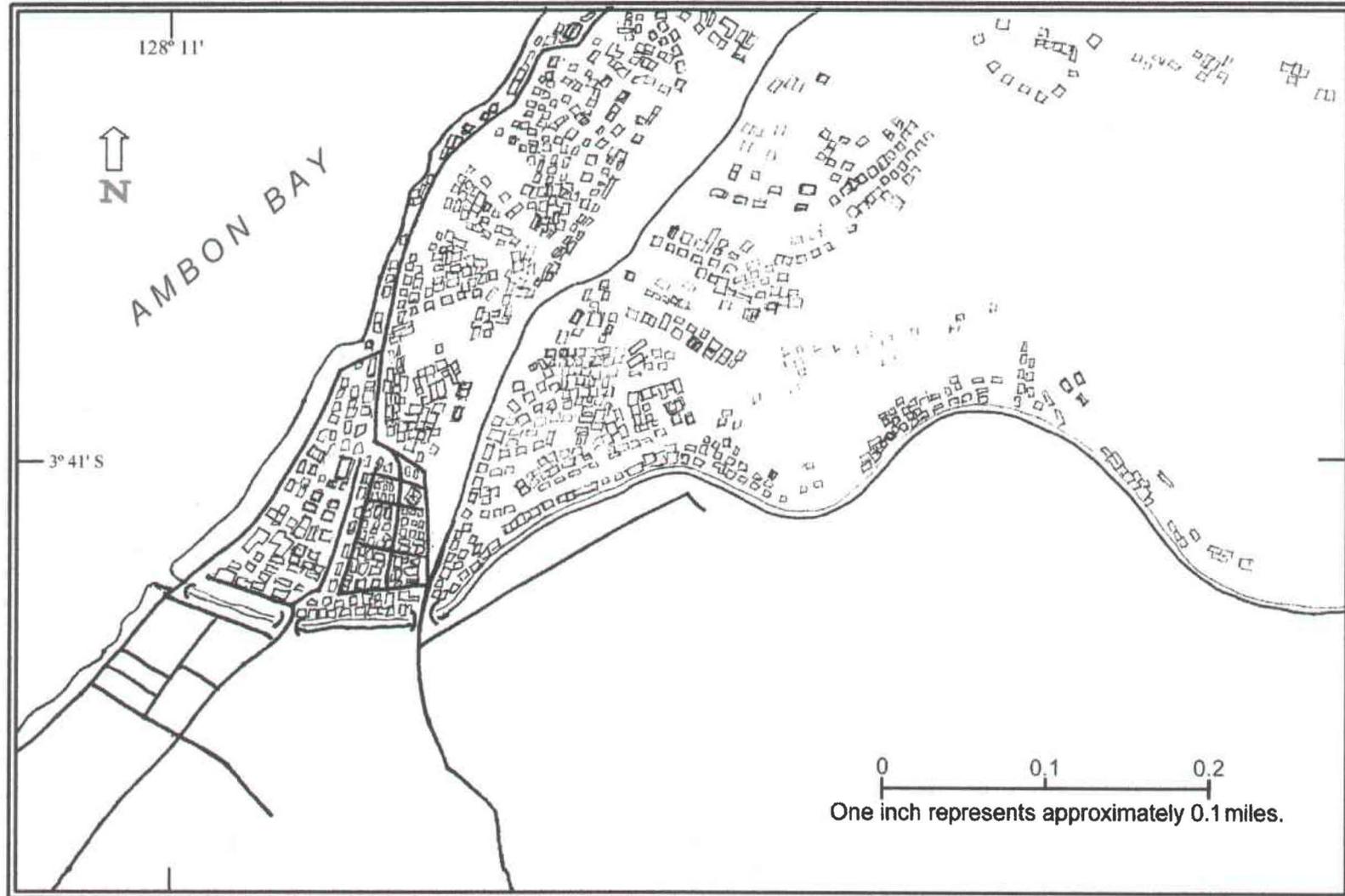
details how these entities and their organizing activities are both constituted by, and exert influences upon, local social networks. The investigation of social networks from the ground up and within particular historical context underscores the potential of local organizing activity as an important exercise of power, and local households and groups as (re)structuring, transforming agents.

## **THE CONDITIONS OF EXISTENCE: PROFILES OF BATU MERAH AND WAIHAONG NEIGHBORHOODS**

### ***A Profile of Batu Merah***

#### Origins, Settlement Pattern and Physical Conditions

Batu Merah is a crowded, predominantly low-income neighborhood located just to the north of Ambon's central urban district (Figure 5.1). One of Ambon's largest neighborhoods, Batu Merah officially encompasses the entire 1,660-hectare Batu Merah River watershed basin, from the shoreline of Ambon Bay to the upper slopes of the Leitimor peninsula. However, due to geographical factors, namely the scarcity of flat land, only a tiny portion (2%) of this area is urbanized. As seen previously at Table 3.5, approximately 98% of Batu Merah's population resides in an area of about 35 hectares



Source: Bappeda Tk. I Maluku, 1996.

Figure 5.1. Map of Batu Merah Neighborhood.

adjacent to the shoreline and the Batu Merah River. Batu Merah is bordered to the north by the urban *kelurahan* of Pandan Kasturi, and to the south by *kelurahan* Rijali and Mardika, both bustling market neighborhoods.

Originally designated a rural *desa* (village), Batu Merah was re-classified in 1965 as a 'rural' unit of Ambon City, and in 1981 became officially incorporated as a neighborhood within the Ambon Metropolitan District. Batu Merah is one of the oldest settled areas of Ambon City. As early as the 1580s Batu Merah was occupied by various groups associated with the first European settlement: a Portuguese fort which would later form the nucleus of Ambon City (Knaap 1991). Because of conversions and religious divisions developing on the island many Christian Ambonese villages came to establish ties with the fort and had representatives living at its fringes during the period 1600-1880 (Abdurrachman 1974, Rumphius 1910).

The original settlement, now known as 'Lower' Batu Merah was originally a forested area along the shoreline with clusters of houses built around the fort by Ambonese Christians and other groups who were engaged in fishing, trade, market gardening and small industry. These groups came predominantly from the Passo and Halong areas of Ambon Island. Batu Merah, (literally, 'red brick') may have derived its name from a prominent brick-making industry established in the area.

Under Dutch law, until 1942, Batu Merah was designated a rural 'village' ruled by an appointed *adat* chief or *raja* and an elected village council or *saniri*. However, during its 340 years under Dutch colonial control, many customs and traditions – including those pertaining to land use and inheritance, marriage and mutual assistance – were abandoned

or greatly transformed. Today, Batu Merah still retains a loose *adat* relationship with Passo which consists of a pact of mutual aid, but little else. Relations consist mainly of assistance with building mosques and other community projects.

According to neighborhood elders, Batu Merah underwent a series of drastic social shocks and upheavals beginning in the early 1940s. During the period of Japanese occupation (1943- 1944), many families fled to Passo or to neighboring islands to escape religious discrimination by the Japanese and the allied bombings which leveled most of the area. In the late 1940s and early 1950s, waves of Ambonese military and intelligentsia departed for the Netherlands following a failed political movement to create an independent Republic of South Maluku (*Republik Maluku Selatan*). Fleeing persecution by invading Indonesian troops (who considered Ambonese as allies of the Dutch), thousands remained abroad until the 1970s, at which time some families were repatriated to Ambon (see also Figure 4.5). The decades of the 1960s and 1970s saw a further breakdown of *adat* relations, involving a concentration of quasi-government powers to the (now elected) *raja*, the transfer of Batu Merah 'village lands' to (Indonesian) government control, and the alienation of large tracts of *Dati* (family or clan) lands to their presumed 'original owners'<sup>1</sup>. During this period, several of Batu Merah's elite groups of intermarried Christian and Muslim *Dati* relocated from the crowded shoreline to areas far above the city.

---

<sup>1</sup> It is unclear when the Batu Merah *Dati* land grants were established. According to Cooley (1962:58), the *Dati* is a very old designation dating from at least the early 17<sup>th</sup> century. 'Dati lands' were also granted to certain families by the Dutch up until 1814.

Beginning in the 1970s, multitudes of migrants, mostly from South Sulawesi, Java, and Maluku, began to flow into Ambon. Its close proximity to markets and the city center made Batu Merah an attractive target destination for civil servants and new immigrants. New settlers found ready employment in Ambon's expanding commercial district, and local inhabitants eager to rent land and houses. In the mid-1970s, the government appropriated five hectares along the Batu Merah River for military housing. For nearly three decades housing stocks mushroomed to accommodate the flood of new residents pouring into the neighborhood. Government efforts to prevent building of illegal structures failed as housing rapidly filled all available space near the city center, including steep slopes, riverbanks and even a cemetery (see Figures 5.2 -5.5). In areas near the marketplace, structures were built literally wall-to-wall. Two early relocation attempts in 1980 and 1983 moved 133 families from hazardous areas, only to have the owners rent the vacant structures to newcomers.

National government policy subsequently shifted from one of explicit censure and removal of illegal structures to one of tolerance and *laissez-faire* administration, with occasional exceptions, (see, for example, pp. 223-225). Although national housing programs have increasingly emphasized upgrading, little in the way of expertise or funds have been made available at the city level to implement such plans. Moreover, the day-to-day tasks of monitoring construction and housing conditions were handed over to neighborhood officials ill equipped to carry out these tasks. As a result, urban growth in Batu Merah has been largely uncontrolled and/or unguided. The resultant mixture of diverse ethnic and religious groups packed together in temporary and semi-permanent

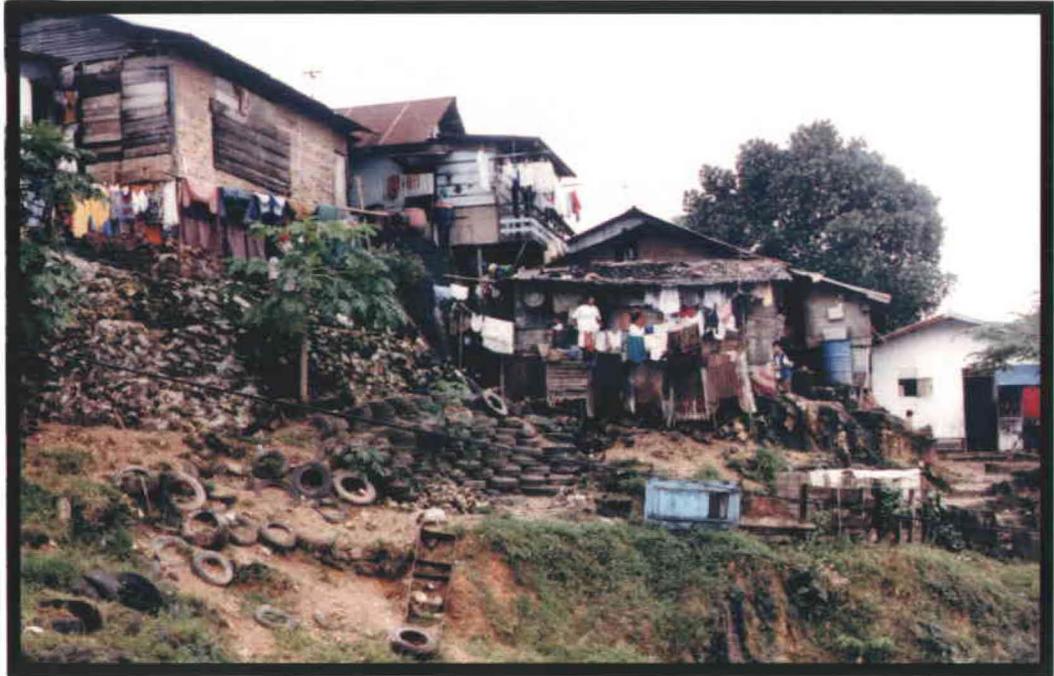


Figure 5.2. Steep Slope With Housing and Erosion Control, Batu Merah.

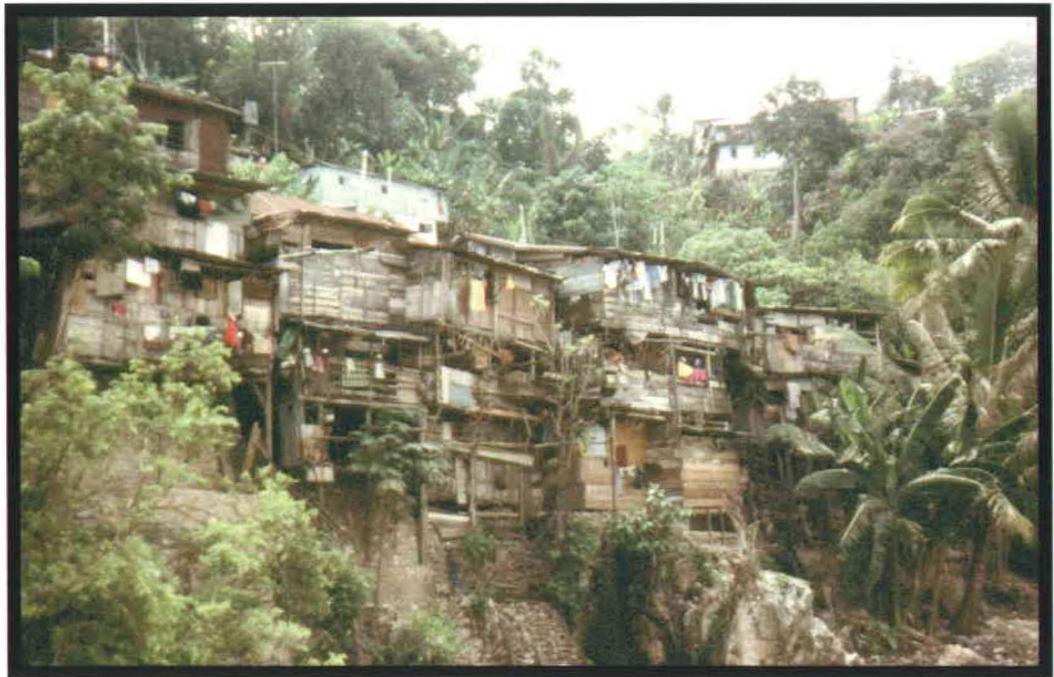


Figure 5.3. Steep Slope With Multi-Level Housing, Batu Merah.



Figure 5.4. Houses Built Upon Graveyard, Batu Merah.



Figure 5.5. An Alleyway Serves Many Puposes.

housing has tended to both cement relations among a few groups and exacerbate an atmosphere of competition and mistrust among others.

Batu Merah's ecosystems have similarly undergone extensive transformations. By 1900, most vegetation around the city had been removed. By the early 1970s, Batu Merah's last remaining forested areas along the river had been cut, giving way to rental housing and temporary housing. Also visible on the landscape are changes wrought by a massive *government shoreline reclamation project* of the 1980s, which added three meters of fill and completely reconfigured the Batu Merah coastal market and nearby residential areas. Conducted in several phases, this project caused significant environmental damage when soil was simply dumped in some beach areas without first constructing retaining seawalls. Much of the unsecured soil was quickly removed by tidal action and transported by currents, smothering nearby reefs and seagrass beds and coating nearby beaches with sediment.

Subsequent to the shoreline fill project, Batu Merah's run-down waterfront market was redeveloped and expanded by government. Rows of concrete market buildings, a grid of paved paths and a system of covered drainages were installed in the marketplace. Associated projects for flood control, paths, and *MCK (mandi-cuci-kakus* or combined bathing, washing and toilet facilities) were also implemented by the Department of Public Works in lower Batu Merah in the mid-1980s. These projects appropriated large areas of land (mainly belonging to elites), fragmented existing settlements and forced many families to relocate. A major road project in 1985 re-graded and widened two branches of a major urban arterial, Jalan Sultan Hassanudin /Jalan

Jendral Sudirman, cutting a wide swath through Batu Merah. Today, these roadways are delimited by eroded roadcuts and mounds of fill which in some places approach within one meter of adjacent homes. This project obliterated 32 houses, three wells and numerous access paths. However the road and market expansions cemented Batu Merah's position as an important commercial district and transportation linkage point.

Today, the 'lower' or shoreline portion of Batu Merah consists of a 7-hectare area of residences and its main commercial areas. Inaccessible by automobile, the primary modes of transportation are foot travel and motorbike. Batu Merah's commercial areas attract many non-residents. Each day thousands of pedestrians flow through lower Batu Merah on their way to and from market. This area has a grid of narrow paved paths bordered by concrete storm drains, small electrical distribution poles and more than 50 wells. On the waterfront, *pasar* Batu Merah conjoins the city's main marketplace, where Ambon's residents buy and sell household items, building materials, new and used clothing, electronics, fuel, antiques and curios, books and every type of foodstuff. At one end of the market are a *bus terminal* and scores of small and medium-sized service enterprises which include hotels, restaurants and bars, a travel agent, copy shops, salons, and tailors. *Pasar* Batu Merah is bulging at the seams, and spills out into the residential streets of lower Batu Merah where a smaller-scale version of the market flourishes. Here, neighborhood residents and small-scale vendors unable to afford market stall fees assemble along the edges of footpaths, selling items from tiny stands or from cloths laid directly on the pavement. Lower Batu Merah is also the site of a multitude of home

enterprises (especially prepared food and sundry sales), and of many small industries ranging from furniture manufacture to noodle making to shell crafts.

While older residents report that before 1940 several dozen large European-style houses existed in lower Batu Merah, today a single old Dutch-style house remains. A crumbling structure with brick and plaster foundation, *atap* (sago leaf thatch) roof and *gaba-gaba* (sago palm stalk) walls, the house is considered a 'historic site'. Today, residences in this area are predominantly single-storey structures of either 'semi-permanent' construction (concrete foundation, walls of wood or other material, and corrugated or thatch roof) or 'permanent' construction (concrete foundation, brick walls, and sheathed roof). Some are built upon the foundations of houses leveled in wartime bombing attacks. Over half of the houses located near the marketplace have makeshift rental additions – tiny sleeping sheds without kitchen, bath or toilet, constructed from wide planks or corrugated metal.

Along the eastern border of lower Batu Merah is the 4-hectare Jalan Sudirman corridor, a heavily used transportation route for every type of vehicle entering and exiting the city. At its fringe are crowded mixed residential and small commercial enterprises. Also situated along this busy thoroughfare is *Al Fatah*, one of Ambon's largest mosques.

The 'upper' Batu Merah settlements – residential areas to the north, and to the east along the Batu Merah River – comprise approximately 23 hectares. These areas are markedly different in appearance and activity from the lower areas. Here are found Ambon's most densely-packed settlements of urban poor. These areas comprise steep, eroded, flood-prone and otherwise less desirable lands which generally lack basic

amenities. Most paths are unpaved and seasonally muddy, with access limited to foot traffic and motorbike. Housing is less permanent and more varied in its construction, often incorporating mixtures of materials such as peeled poles, bamboo, plywood, corrugated metal, planks, chicken wire, *gaba-gaba* and *atap*.

Along the banks of the Batu Merah River are areas of badly dilapidated wooden multi-storey rental housing and a low wooden military barracks. At another nearby site, densely packed housing covers a cemetery, where gravestones serve as foundations for some structures (Figure 5.4). Higher up is a military housing project, with houses built upon terraces cut into the river's floodplain. Above these, temporary wooden houses secured with poles and ropes perch precariously on overhanging rock ledges. North of the river is a steep rocky region overlooking the Bay. Here are areas of temporary housing accessible only by foot. As there are very few wells, most residents must purchase water at inflated prices from water sellers or carry water up the steep terrain from the river. The scarcity of space also means little room for commercial activities and for amenities such as public toilets and drainages. Close to Jalan Sudirman is an area of tightly packed lean-to shelters, wooden 'dormitory' houses and makeshift 'bars' where more than 300 female prostitutes reside.

#### Present Day Population

According to official accounts, Batu Merah's rapid population growth is largely the result of in-migration. Municipal statistics show that Batu Merah's population grew from 16,969 in 1986 to 22,915 in 1990, a total of 26% over four years (Table 5.1).

**Table 5.1. Profile of Batu Merah Neighborhood, Comparing Survey Findings With 1996 Municipal Statistics.**

| <b>ATTRIBUTE</b>             | <b>GOVERNMENT STATISTICS</b> | <b>SURVEY FINDINGS</b>    |
|------------------------------|------------------------------|---------------------------|
| Population                   | 29,583                       | 22,125 Urban              |
| Area                         | 1667 Hectares                | 35 Hectares Urban         |
| # Households                 | 5500                         | At least 4533 Urban       |
| Household Size               | 5.4                          | 6.2                       |
| Density (persons/ha)         | 18                           | 800                       |
| <u>Religious Composition</u> |                              | <b>SAMPLE COMPOSITION</b> |
| Muslim                       | 45%                          | 63%                       |
| Christian                    | 54%                          | 37%                       |
| Other                        | 1.0%                         | —                         |
| HH Monthly Income (mean)     | 1,062,500 rupiah,            | 570,000 rupiah            |

By 1996, the (urban + rural) population had grown to 29,583 residents or 43% growth over 10 years (BPS Kotamadya Ambon 1993b, 1996b). However, local officials believe that these figures under-represent the total population, as they exclude a significant segment of arrivals – perhaps as many as 2,200 people per year – not formally registered with the *raja*'s neighborhood office. According to the *raja*'s secretary, a portion of this unregistered population consists of circular migrants who periodically move between Ambon and other regions. Keeping in mind these unregistered and mobile population segments, I eventually estimated Batu Merah's 1996 urban population to be at least 28,103 persons. Employing this adjusted estimate and adjusted urbanized area of 35 hectares, the average population density for urban Batu Merah was then estimated at approximately 800 persons per hectare. This finding exceeds by far the officially reported 18 persons per hectare for Batu Merah. In addition, key informant accounts and researcher observations suggest that several areas of lower Batu Merah may have two to three times this number of occupants (i.e. densities as high as 2400 persons per hectare).

Mean household size for the survey sample was 6.2 persons, also significantly greater than the mean 5.4 persons per household reported in government statistics. Based upon this larger household size, the total number of households in the urban area was estimated at 4,533 for 1997.

The survey sample consisted of 63% Muslim households and 37% Christian households, as self-described, with several respondents reporting households of mixed faith. While this finding did not correspond to official 1996 statistics for Ambon City as a whole, it was supported by neighborhood officials' estimates of a 60:40 Muslim-to-

Christian ratio for most RWs. These officials also confirmed that Muslim and Christian residences are not clustered but are intermixed throughout the neighborhood. Although several key informants stated that Batu Merah was 'originally' a Christian settlement, today the Islamic faith appears to prevail – the neighborhood has 17 mosques and prayer houses and two *Christian churches*. Nonetheless, this appearance may be illusory as Ambon's largest and most popular Christian churches are located in the central downtown area.

Most residents of Batu Merah are poor. The 1997 Batu Merah survey found a mean household income of 570,000 rupiah per month (equivalent to about U.S. \$190), with 13.3% of sample below poverty line (officially classified by the Indonesian government as 'poor' – roughly equivalent to U.S. \$400/year/person). 73.3% of households sampled were low income ('near poor' – about U.S. \$1005/year/person); 13.3% were middle-to-high income (about U.S. \$2800/year/person); and zero percent of the sample high income (U.S. \$5000/ year/person and up)<sup>2</sup>. These findings conflicted with 1997 Provincial statistics, showing a mean income of 1,062,500 rupiah per month (equivalent to U.S. \$530) for an average Ambon City household of 5.4 persons. However, this present study's findings closely correlate with those of a survey conducted in Batu Merah by the National Ministry of Population during 1998. Although only 'registered' households were documented in the 1998 study, its findings include an average per capita income of about Rp. 1.1 million (550,000 rupiah / US \$183 per month)

---

<sup>2</sup> These groupings are based upon income categories designated by the National Ministry of Population. The poverty line is of course an artificial construct. Thus the distinction between groups designated as

for a family of six. In terms of income distribution, this study also classified 85% of households as very low income ('poor' or 'near-poor'); 14.07% as middle-income and 0.03% as high income (Patronis 1998). At the same time it is also important to bear in mind that the rapid inflation occurring during this period drastically reduced the purchasing power of the average household.

Although the target of the household survey was nonspecific as to gender or status in the household, a majority of survey respondents (95%) were women (Table 5.2). This was an unexpected yet in some ways favorable outcome. Women are often the main managers of the household environment and they (and children) tend to spend more time in the home. As a result, women frequently are able to provide detailed accounts of the household's economy and the various activities of its members. Women and children are also often most at risk from household environmental problems.

The age of respondents ranged from 23 to 72 years old, with a median age of 35 years. Nearly all of the respondents (90%) were between the ages of 21 and 50 years and most were married (80%).

Households ranged in size from one to 14, with a mean size of 6 persons. The number of children under 14 years of age living in the household ranged from none to six, with three being the mean. Household types included nuclear families, siblings living together, extended families, females with children, and groups of unrelated workers or students living together in communal lodgings.

---

'impoverished' or 'near-poor' often appears arbitrary, as dramatically illustrated by the outcomes of the economic crisis of 1997-2000.

**Table 5.2. Profile of Batu Merah Survey Respondents.**

| <b>CHARACTERISTIC</b> | <b>(f)</b> | <b>%HH</b> |
|-----------------------|------------|------------|
| <u>Gender</u>         |            |            |
| Female                | 57         | 95.0       |
| Male                  | 3          | 5.0        |
| <u>Age</u>            |            |            |
| 10-20                 | 0          | 0          |
| 21-30                 | 16         | 26.7       |
| 31-40                 | 14         | 23.3       |
| 41-50                 | 20         | 33.3       |
| 51-60                 | 4          | 6.7        |
| 61-70                 | 5          | 8.3        |
| 71+                   | 1          | 1.7        |
| <u>Birthplace</u>     |            |            |
| Ambon                 | 22         | 36.7       |
| Maluku                | 10         | 16.7       |
| Sulawesi              | 17         | 28.3       |
| Jawa                  | 11         | 18.3       |

Continued...

**Table 5.2, Continued.**

| <b>CHARACTERISTIC</b>  | <b>(f)</b> | <b>% HH</b> |
|--|------------|-------------|
| <b><u>Ethnic Composition</u></b>                             |            |             |
| Ambonese   | 16         | 26.7        |
| Other Moluccan   | 11         | 18.3        |
| Sulawesi groups (Butonese, Bone, BauBau, Buginese, Makassar) | 20         | 33.3        |
| Javanese   | 11         | 18.3        |
| Irianese   | 1          | 1.7         |
| Other  | 1          | 1.7         |
| <b><u>Length of Residence</u></b>                            |            |             |
| 0-1 Year   | 4          | 6.7         |
| 2-5 Years  | 5          | 8.3         |
| 6-10 Years   | 13         | 21.7        |
| 11-15 Years  | 12         | 20.0        |
| 16-20 Years  | 8          | 13.3        |
| More than 20 Years   | 18         | 30.0        |
| <b><u>Housing Status</u></b>                                 |            |             |
| Own  | 42         | 70.0        |
| Rent   | 18         | 30.0        |

The survey found great ethnic diversity among the pool of respondents. Those of Ambonese ethnicity composed nearly 27% of sample, and other Moluccans 18%, while South Sulawesi groups made up 34% of sample and Javanese 17%. Although government statistics regarding ethnicity are not collected for the neighborhood, these findings were confirmed in a general way by the *raja*'s secretary, who estimates Batu Merah's population to be approximately 30% Sulawesi groups, 30% Ambonese, 20% Javanese, and 20% other groups (KIBM5). However, it became apparent during the course of interviews that many people identified with more than one group or subgroup. A finding which flew in the face of Batu Merah's image as a major locus of entry and transition for new migrants was that very few of the respondents were new arrivals. In fact, most (85%) had lived in the neighborhood for more than five years, and 30% had resided in Batu Merah for more than 30 years. Moreover, while only 37% of the sample respondents were born on Ambon Island, this group included four first-or-second-generation individuals of Irianese, Butonese and Buginese ethnicity, and seven individuals of other Moluccan origin. Five respondents described themselves as ethnic Ambonese born in other areas of the Moluccas or other provinces of Indonesia. Further, over 60% of respondents reported owning their own homes.

These findings may also be indicative of a condition of 'saturation', i.e., most space in Batu Merah is filled and newcomers are joining existing households or renting space from existing households. It also became apparent during the course of the survey that households were frequently in flux. Eight percent of respondents reported circular migrants (individuals who regularly move between Ambon and other cities or regions for

purposes of employment or trade) residing in the household, while more than half (55%) reported one or more members moving elsewhere to attend school or find work in the past year; or relatives (kin or fictive kin) or outsiders moving into the house over the past year. Under these fluctuating conditions, renting space to others also appears to be an important strategy. According to key informant accounts, over one-third of households derive some income in this manner. The survey found a somewhat lower occurrence – 23% of households sampled reported deriving a portion of household income from rents. Thus it appears that in spite of crowded conditions and a tendency of many immigrants to remain in Batu Merah for years or even permanently, mobility remains high and opportunities for entry of new residents are preserved via a limited pool of rental space. Put another way, it is likely that a substantial portion of the unregistered or ‘hidden’ population is directly associated with the routine restructuring of households.

### Education

The high level of participation in education (nearly 92% of sample) by respondents of all age, income and ethnic categories demonstrates the ability of Indonesian national education programs to reach all groups (Table 5.3). However, the median level of attainment was completion of middle school, or only about eight years of instruction. Twenty three percent of respondents completed high school or trade school, although few (less than 7%) went on to complete one or more years of college.

**Table 5.3. Level of Education, Batu Merah Survey Respondents.**

| <b>EDUCATION LEVEL</b>      | <b>(f)</b> | <b>% SAMPLE</b> |
|-----------------------------|------------|-----------------|
| None                        | 5          | 8.3             |
| Primary-completed           | 14         | 23.3            |
| Middle-completed            | 20         | 33.3            |
| Secondary-completed         | 14         | 23.3            |
| Trade-completed             | 4          | 5.0             |
| College (one or more years) | 4          | 6.7             |

### Economic Conditions

Income information was collected for all earners, including children aged 12 and under. The number of earners per household ranged from one to five, with a mean of 2.4 earners. Only six respondents (10% of sample) reported child earners in the household. Three of these reports were from the lowest-income households in the sample, indicating a possible strategic response for increasing household income.

With respect to employment relations, 73% of respondents reported that their household relied at least partly upon non-waged labor. Many respondents described

these as 'self-employed' or 'entrepreneurial' activities. Sixty three percent of total waged labor reflected civil service positions, with 20% of total sample reporting one or more members engaged in waged civil service positions. As seen at Table 5.4, households display great heterogeneity in the number and type of income-earning activities in which they engage (see also Figures 5. 6 – 5.10). Primary activities are vending, trading, and services. Two thirds of all vendors in the sample were women, and 25% of sample engaged in some type of home-based enterprise.

The essential nature of these non-waged and entrepreneurial activities to the urban economy has been well documented in other locales. Small scale trading and vending provide easy market entry, as such activity requires little infrastructure and capital investment to start a business, and skills are quickly acquired. (Bromley and Birkbeck 1988). Women and migrants play important financial roles as street vendors and traders (Bromley 1988). Such small-scale activities also play an essential role in the distribution of goods. In conditions of socioeconomic inequality, low technology and shortages of capital, the trade sector requires greater quantities of workers to perform distributive functions (Teltscher 1995, Potter 1992). A high demand for small scale vending is also evident. A common strategy of low and middle income households is the frequent purchase of goods and services in small quantities. While in the short run more convenient and affordable, in the long run consumers pay far more this way. Surveyed households spent an average of 58% of income on food, water, fuel and educational expenses for children, with many of these outlays made on a daily or weekly basis. Street retailing encourages consumption by keeping items low-cost and readily available around

**Table 5.4. Profile of Economic Activities of Surveyed Households,  
Batu Merah.**

| <b>ECONOMIC ACTIVITY (All Adults)</b>  | <b>(f)</b> | <b>% HH</b> |
|--|------------|-------------|
| Vending<br>(Food, Clothing, HH Goods, Oil, Specialty Items)  | 28         | 46.7        |
| Trading<br>(Small and Medium Traders)  | 14         | 23.3        |
| Civil Service<br>(Teacher, Policeman, Office Worker, Sailor)   | 12         | 20.0        |
| Other Services (waged and unwaged)<br>(Contractor, Becak Driver, Tailor, Laundress, Cook, Spiritual<br>Consultant, Salesperson, Prostitute, Hotel clerk, Mechanic,<br>Laborer) | 12         | 20.0        |
| Rent –Becak, auto, housing, etc.   | 13         | 21.7        |
| Restaurant Owner   | 2          | 3.3         |
| Manufacturing, Small   | 2          | 3.3         |
| Artisan, Shell Crafts  | 2          | 3.3         |
| Factory Worker   | 1          | 1.7         |
| Fishing  | 1          | 1.7         |



Figure 5.6. Women Vending on Street, Lower Batu Merah.



Figure 5.7. Soup Vendor, Batu Merah.



Figure 5.8. Food Vendors Prepare Ingredients at Home, Batu Merah.



Figure 5.9. Fishing at Batu Merah Waterfront.



Figure 5.10. Pasar Batu Merah.

### **Box 5.1. A Becak Driver in Batu Merah**

#### **Profile: A Becak Driver in Batu Merah**

Nearly half of Ambon's 2000 becaks and over 800 becak drivers are based in Batu Merah. Many drivers are single males. Drivers are predominantly Butonese and Buginese, with fewer numbers of Ambonese and other groups playing a part. Most drivers do not own their own becaks, but rent from wealthier residents. Becaks are a favorite investment of certain groups, namely civil servants and ethnic Buginese. Of these a few own 50 or more becaks. The remainder are small-scale investors averaging three becaks or fewer.

The City strictly regulates the sales price and total number of becaks, as well as their periods of operation. Each becak is painted one of three assigned colors.

Red becaks may operate on Mondays, Tuesdays, and Fridays while yellow becaks may operate Wednesdays, Thursdays and Saturdays and white becaks may operate on Tuesdays, Thursdays and Fridays. All becaks may operate on Sundays. Many drivers forge agreements with becak owners which enable them to operate more than one becak each week.

A becak ride costs anywhere from 500 to 2000 rupiah for adults and 200-300 rupiah for school children. The final price is negotiable and depends on many factors including the person's size and bargaining ability, the distance traveled, the time of day and relationship to the driver.

**Box 5.1, Continued.**

Although a few – particularly those who own becaks – are long-term operators, most drivers view becak driving as a temporary activity, one to fall back on in times of need or as a secondary activity. Some drivers are newly graduated college students. Others work part-time at other skilled and unskilled occupations such as small trading, construction, small industry, auto mechanics, and crafts.

Dar, 28, drives a becak five days per week in the downtown area. Three years ago, he moved to Ambon from South Sulawesi because there were no jobs in his town. Relatives told him Ambon was a place of opportunity. He pays a moderate becak rental price – 5,000 rupiah for a half day and 10,000 for a full day. On a good day, he makes about 20 thousand rupiah in fares. At the end of the day, after paying for food, the becak rental fee and other expenses, he is able to save about 5 thousand rupiah. This he deposits in a savings account at a citywide transportation workers cooperative. The cooperative also offers short-term loans and other benefits such as an emergency fund.

Dar is unmarried and lives with his sister, her husband, and their five children in a rented house near the *pasar*. He sleeps and bathes at the house and usually eats an evening meal there. On Fridays he goes to the mosque and often does not work. On Sundays he helps with babysitting, and frequently ‘borrows’ a becak to transport family members on shopping errands. He has a good relationship with Batu Merah’s wealthiest becak-owning family, which includes credit at the family’s restaurant, and occasional work repairing becaks. The family also provides several months’ advance’ rental credit’ in the months leading up to Ramadan, the Islamic

**Box 5.1, Continued.**

fasting month when minimum shopping takes place, restaurants close, and income from becak driving becomes irregular. Dar hopes that in the future he will also be employed as a laborer by a neighbor who is a contractor.

the clock. At the same time the high level of expenditure reflects a fundamental insecurity of households. This insecurity may be offset partially by establishing reciprocal relationships with vendors.

These local distribution and consumption activities also have important linkages to national and international production centers including Ujung Pandang, Jakarta, Surabaya, Semarang, Medan, Hong Kong, and cities in Japan, Korea Taiwan, and the Middle East. For while the number and activities of large scale chain stores and supermarkets are increasing, it is still the middlemen and small traders and vendors who provide the main linkages for realization of the potential of local markets through shifting trade patterns. Thus, micro-enterprises are increasingly linked with and supporting large global enterprises as low-cost distributors of products.

## **Box 5.2. A Food Hawker in Batu Merah**

### **Profile: A Food Hawker in Batu Merah**

Hundreds of households and thousands of individuals in Batu Merah are involved in food vending. A diverse mix of informal warungs, kiosks, stalls, sidewalk vendors and mobile food vendors provides an astonishing array of cheap, ready-made foods round-the-clock. Common street foods include noodle dishes, soups, yellow rice, fried rice, fried bananas, stews, cassava, taro, eggs, fruits, sate, *es* (sweet shaved ice dishes) and a wide variety of drinks. A majority of sellers are women, although certain types of operations, for example *gerobak* (mobile food carts) and ‘specialty’ stands (selling Padang and Madurese foods) are usually operated by men.

Though not strictly adhering to categories, various types of foods are typically associated with specific ethnic groups. Besides the Padang and Madurese specialty stands there are Javanese warungs serving imported specialties such as fried duck and pigeon. “Traditional” Ambonese foods such as *ikan bakar* (barbecued fish), sago cakes, boiled bananas and boiled taro are typically sold at night from tiny sidewalk stands by middle-aged Ambonese women. *Gerobak* selling *bakso*, *sate*, and rice and noodle dishes are often owned by Javanese and Buginese. All groups sell sundries, drinks and snack foods of all kinds from kiosks, baskets or stands. Sales are demarcated in time and space in a complex set of relationships.

**Box 5.2, Continued.**

Sometimes the same person or group has 'laid claim' to a specific site for a fixed period each day, and he or she arrives, sells and then leaves. Others have erected semi-permanent market stalls and sell there each day during specified times, or have a friend or relative sell for them. Sometimes vending space is sublet to another vendor for a period while the 'owner' is out of town or not using the space. All the sidewalk vendors in the main marketplaces must pay a daily use fee for daylight hours. During the daytime, space is at a premium, as hawkers must squeeze in alongside sellers of household goods, spices, produce, and other commodities. A food vendor may spend from one hour to half a day, depending upon how long it takes to sell her merchandise. At night when there are few if any use fees, food hawkers become the dominant sellers in the marketplace. The 300-odd mobile *gerobak* operators work in shifts in predetermined areas of the city, selling their prepared foods from 5 am until midnight. Night vendors cluster near strategic locations: bus terminals, entrances to neighborhoods, main streets and becak pick-up points.

Leti is a 19-year old food vendor from East Java who has lived in Ambon for a little under one year. She moved here to join her 22-year old sister Siti and 24-year old brother Budi who have been operating *gerobaks* in the Batu Merah market for several years. Other relatives have come and gone before her, working in Ambon then 'going home' to Java. Leti and her siblings are among an all-Javanese group of *gerobak* owners who frequently pool resources and labor. They store their three *gerobaks* along with five others belonging to other members of the group in a shared rental space.

**Box 5.2, Continued.**

They also share a rented food preparation space, and occasionally shopping duties, with another *gerobak*-owning group. Certain neighbors may be relied upon for emergency loans and other day-to-day support. Although the security and familiarity of this social network are vital, Leti also enjoys the freedom and independence that come with living in Ambon. Using Ambonese slang, she notes that the social climate is more 'open' and 'free' than that of Java. She also feels that the economic outlook is promising. Ambon, she says, is a place where it is still easy to make a living.

Five years ago Leti's brother and sister moved to Ambon after obtaining the capital to purchase their carts from a relative in Java. Their business was so successful they were able to pay back the loan in under three years, and have employed several relatives over the years. Leti and her siblings pool their incomes to pay rents and keep the *gerobaks* going. They share a tiny 3m. x 4m. sleeping space, a wooden shed with a single light bulb and no toilet, bath area or kitchen, for which they pay 250,000 rupiah per year.

Most of the food for the three carts is prepared by Leti and Siti, while Budi and a male helper operate and maintain the carts. Preparation for the morning's food sales begins the previous evening. At 4:30 a.m., one cart departs for the market, selling rice porridge, rice bundles, bread and tea. Around 5 a.m. Leti's sister prepares *lonton* (rice dumplings) and rice while Leti goes to the *pasar* to purchase chickens, noodles, rice, vegetables, and other supplies.

**Box 5.2, Continued.**

After preparing ingredients for fried noodles, fried rice and chicken dishes, for the second cart Leti and Siti prepare an *es* cart with flavoring syrups, coconut milk, and other ingredients. After these carts leave for the bus station and market Leti naps until 5 p.m. when it is time to begin the cycle again. The carts operate six days per week.

Each food cart yields between 30 and 100 thousand rupiah daily, more than a third of which must be invested for the following day's supplies. Half of the remaining earnings from the *gerobak* belong to the operators, and the remaining portion is divided between Leti and Siti. After paying for rent, food and incidentals, Leti saves 10-40 thousand rupiah each week, some in the form of gold jewelry and the rest in cash. She aspires to return to Java in two years to open her own store.

Batu Merah's Environmental Conditions

As previously noted, Batu Merah was originally a forested site (Weiss 1992). Elderly informants describe this area prior to 1950 as having many fruit and spice trees often inhabited by flocks of white *Kasturi* (cockatoo), a clear-running river with fish, and colorful, teeming coral reefs in the nearshore waters of Ambon Bay. Today the lower Batu Merah River is so choked with sewage and solid waste that it longer supports life,

and the neighborhood is entirely denuded of vegetation, save the occasional papaya tree or ornamental shrub. Hillslopes and riverbanks not stabilized with sandbags or rock are eroding at a rapid rate, and numerous landslides are reported each year. In 1996 three people died when heavy rains dislodged houses from steep areas above the Batu Merah River.

During its peak growth period from the mid-1970s to mid-1990s, Batu Merah faced many deficiencies in urban facilities and utilities. According to key informants, an electrical distribution line was in place by 1975, but only about 50% of households were connected by 1985. During this period, more than half of residents also did not have access to a fresh water supply, and sanitation was essentially absent. The sporadic infrastructure projects implemented over the years by government did not begin to meet the needs of a rapidly expanding population. Residents provided their own, adding among other things, electrical connections, paths, and wells. Much of the existing onsite sanitation, waste management, pollution control, vector control, water storage and shelter were provided by residents themselves in this manner. The provision of housing and facilities has thus proceeded mainly in an *ad hoc* fashion, with residents providing much of their own day to day needs, punctuated by projects dispensed from the central government. As we also shall see, the implementation of some national programs and services in the neighborhood has also been beset by political strife, including conflict between local desa officials and higher-ups, and resistance from various groups .

Altogether, the present level of facilities and services remains insufficient to serve Batu

Merah's population, and most existing infrastructure is in fair-to-poor condition. Levels of infrastructure and services were declining during the research period.

### *Housing*

Housing is in huge demand. Prices in and around Batu Merah are rising rapidly, while procuring new land for low income housing has become a near-impossibility. Existing housing is overcrowded and generally in substandard condition. Neighborhood officials estimate that there are between 250 and 300 *rumah kumuh* or degraded shanty houses in Batu Merah. Such houses typically are constructed from poles, thatch, planks, and other highly combustible materials, and lack floors, toilet, kitchen and other amenities.

The provincial satellite office of the national Public Works Department monitors housing conditions and conducts citywide planning for renovation in Ambon. In the past it has administered upgrading programs and affordable loan programs for new housing. For example, under the national Kampung Improvement Program (KIP), about 25 of Batu Merah's most dilapidated houses were renovated between 1979 and 1984, while subsidies for military and civil servants in the early 1990s provided land and materials to 16 families, enabling them to construct their own homes. Although for the most part government maintains a hands-off policy regarding squatters and illegal settlements, as we have seen, such settlements in Batu Merah have nonetheless been profoundly affected by large projects such as flood control, road widening and market improvement. More recently, government has on several occasions openly intervened in matters of land and

housing. In 1993 government razed some 60 'illegal' structures located on a steep outcropping in lower Batu Merah. Citing a road widening project, extreme fire danger, landslide hazard, and lack of adequate water and sanitary facilities, the government relocated 45 households to a rural area of Batu Merah high above the city. These actions met with considerable resistance in the form of complaints lodged and demonstrations staged by local residents. However, eventually the houses were removed. In 1996 the provincial public works agency obtained preliminary approval to demolish squatter housing along the Batu Merah River as part of a national pilot project for area rehabilitation. Rental apartments and high-density multi-family dwellings are planned for the area. This project has been on hold since early 1997.

#### *Electricity*

All households of the survey sample had access to electricity. Fourteen households or 23% of sample reported sharing a hookup or using a self-made connection.

#### *Sewerage*

Sewer systems are nonexistent in the city, and domestic wastewater is the dominant source of water pollution. Many homes do not have toilets due to expense, insufficient space for a septic system, and/or the relative proximity of a beach or river. Over half (57%) of survey respondents reported not having a household toilet. To address this gap the government has subsidized more than 50 public and multi-family toilets in Batu Merah through provision of land and materials. Most of these were

constructed with volunteer labor or contracted by neighborhood groups. Despite these efforts, residents face severe shortages which, given the scarcity of land and new government policy emphasis on cost-recovery, are unlikely to be mitigated. Furthermore, due to a locally shallow groundwater table and sandy soils, most septic systems fail their intended purpose – to prevent mixing between groundwater and wastewater. Particularly unhealthy are Batu Merah’s four public MCK (*mandi, cuci kakus*) or combined bathing washing and toilet facilities, which consist of a well constructed directly adjacent to a public toilet. Ultimately, it is likely that nearly 100% of residential wastewater enters the local river, wells and nearshore waters, creating a serious exposure hazard for residents.

### *Drainage*

Batu Merah’s drainage system is a haphazard / irregular network of government-installed open storm drains, self-made gutters, and eroded gullies. Houses located adjacent to the larger, concrete-lined drains commonly use them for disposal of all manner of wastes: gray water, black water (sewage) and solids. Most concrete drains are in poor condition or broken. Thus, even in the best served areas where a grid of concrete drains is in place, many of these are clogged and/or nonfunctional. Only 16 households (27%) of the sample reported having a functioning drainage system. Households without a concrete drain often simply dispose of wastewater along the nearest footpath or gully. Some drains have illegal structures built over them that restrict access for cleaning and increase flood hazard. In some densely settled areas, drains are deliberately blocked or broken in order to provide access footpaths.

The *raja*'s office administers a LKMD mobilization program for weekly community storm drain cleaning. The level of participation in this program reportedly varies amongst the different RWs of the neighborhood but is generally low. According to key informants the program's lack of success is the combined result of political and cultural factors which include resistance of *desa* officials to national government intervention in *desa* administration in general and the programs of the national government party *Golkar* in particular; as well as the imposition of government (i.e. Javanese) ideology of '*gotong royong*' considered by many to be culturally inappropriate in Ambon. While it should be pointed out that several national programs have been implemented without incident in Batu Merah, a pattern of periodic resistance to government party control (and its affiliated brand of Islam and Javanese cultural ideals) is evident, particularly when a program involves volunteer / cooperative efforts. Such mandated "assistance" programs are often viewed as both shrinking the political and moral authority of the *raja* (who historically has enjoyed greater autonomy than his counterparts in the *kelurahan (lurahs)*, and politically inexpedient given an electorate ill-inclined toward mutual aid.

An oft-heard comment from both survey respondents and key informants alike is that little cohesion and solidarity exist between and among ethnic groups in Batu Merah. Several heads of RTs stated that in the past, obtaining the participation and cooperation of the various groups required strong religious appeals and/or persistent ongoing persuasion on the part of RT leaders. At the same time, however, leadership itself is also

disjointed – ongoing volatile relations among many of the more than 60 RT and RW heads create barriers to wider scale cooperation and participation.

Similar problems arise with flood control. Despite extensive shoreline filling, river channelization and periodic dredging, Batu Merah remains a site of annual flooding. The widespread practice of dumping wastes in the river channel greatly contributes to this problem. Although the national *Prokasi* or Clean River Program forbids the dumping of wastes in rivers, such regulations go largely unenforced due to political infighting among neighborhood authorities and their general unwillingness to compel the cooperation of the various groups. As a result of ongoing dumping, severe blockage of the stream channel occurs on a regular basis. Although only 8 households (or 13%) of the survey sample reported being affected (water entering and or damaging house) 58% of the respondents felt that river flooding was a serious concern in Batu Merah. There are at least 140 houses sited along the 4-km. stretch of the lower Batu Merah River.

#### *Solid Waste*

City trucks pick up solid waste once per week at two designated sites (*TPS*) in Batu Merah. The raja's office is tasked with organizing trash removal in the neighborhood. At first residents were instructed to dispose of their trash in plastic bags at these sites. This system proved inconvenient for the many residents who live far from the collection area. As a result, piles of solid waste have continued to accumulate along paths, in ditches and in the Batu Merah River. A neighborhood LKMD mobilization program for waste management was subsequently instituted. This program requires

heads of RTs to collect a small fee from residents for the purpose of collectively hiring a trash hauler with a handcart to collect trash daily. The program has met with two serious obstacles: an inability to find enough workers with carts willing to perform the collection work in Batu Merah's 60 RTs, and a strong resistance of residents to the fee. Many survey respondents complained about being double-charged, as a city surcharge for waste disposal is already added to each monthly electrical bill. Others noted the presence of 'free riders' – residents who do not pay an electrical bill or pick up fee, but nonetheless take advantage of the city's waste disposal system. The original arrangement thus remains in place on an unofficial basis, and residents have created their own means of waste disposal.

Households employ various solutions for getting the trash to the pickup sites. A majority of survey respondents said they employ child labor (35%) or have a designated adult household member (30%) to carry trash to pickup sites. Others find it more convenient to burn or bury trash (14%) or dump it in the river (13%). Recycling is rare in the neighborhood. Aside from two individuals who scavenge scrap metals from the Batu Merah River, recyclers (bottle collectors and scavengers of paper, metal and plastics) are rarely seen. Most households do not separate trash, as recycling is generally considered unimportant. This attitude is reinforced by government regulations which prohibit scavenging in all locations except the landfill (Jamlean 1990). On the other hand, waste from low-income neighborhoods contains fewer recyclable items than that of middle and high-income neighborhoods, and is thus also of lesser interest to scavengers.

The *raja's* office and its functionaries, the heads of RTs and RWs, are also tasked with monthly LKMD general neighborhood clean-ups. Like the storm drain cleaning and many other 'volunteer' programs, the cleanups are poorly attended. Moreover, much of the 'cleaning' accomplished involves cosmetic improvements such as sweeping bare dirt yards smooth and whitewashing curbs and fences, rather than removing waste from drainages and streets or repairing and sanitizing public toilets and wells.

### *Paths*

Other than the main road, Jalan Sultan Hassanudin /Jalan Jendral Sudirman, Batu Merah has no roads passable by automobile. Between 1975 and 1979 a few paved paths, including a one-kilometer *lorong* connecting areas of military housing with Jalan Sudirman, were built via the Kampung Improvement Program (KIP). In the mid-1980s a Marketplace Improvement Program (MIP) built a grid of wide paved footpaths with drains in lower Batu Merah. Elsewhere, paths are by and large self-built by households or groups of households using available space. With the exception of a contiguous four-kilometer stretch of self-built path along the northern bank of the Batu Merah, river, this situation has resulted in a patchwork arrangement of irregularly connected paths which vary greatly in construction style and quality. In extensive areas of upper Batu Merah, narrow spaces between dwellings are paved with concrete stairways constructed by individual households, creating dense settlements interconnected by an irregular, tunnel-like labyrinth of steps.

### *Water Supply*

Aside from a water line serving three households at the southeastern boundary of the neighborhood there is no piped water in Batu Merah. Local wells are the primary source of water. A majority of households surveyed (85%) reported using well water for one or more purposes and 58.3% reported using well water exclusively for all purposes including drinking water (Table 5.5). Often, households obtained water from more than one well, using 'salty' or 'white' wells (coralline/sandstone substrate) for washing and bathing purposes, and 'red' wells (volcanic rock substrate) for drinking purposes. All respondents who used well water for drinking purposes deemed the water to be 'clean'. Most respondents emphasized taste (e.g., sweetness or saltiness of the water), color (clarity or redness) and odor as criteria of cleanliness and acceptability.

Although a variety of factors including cost, access, and type of activity determine sources of water, nearly all respondents cited location as the overriding factor in choice of water source. Many public and private wells (more than 200, according to some sources) dot the neighborhood, making these by far the most accessible sources of water

Over a dozen wells have been built with volunteer labor and materials provided by government under the Kampung Improvement Program and other programs. Although all wells are contaminated, they nonetheless meet the varied physical needs of residents, and provide important space for social interaction. Public wells are heavily used for bathing, drinking, laundry, dishwashing, washing items such as motorcycles, and cleaning produce and other food items for commercial sales. There is a high incidence of sharing

**Table 5.5. Household Water Use by Source and Purpose, Batu Merah.  
(n=60).**

| <b>WATER SOURCE</b>                       | <b>USED FOR</b> | <b>(f)</b> | <b>% HH</b> |
|---|-----------------|------------|-------------|
| River                                     | Bathing         | 1          | 1.7         |
|   | Laundry         | 1          | 1.7         |
|   | Dishwashing     | 1          | 1.7         |
| Public Well                               | Drinking        | 15         | 25.0        |
|   | Bathing         | 24         | 40.0        |
|   | Laundry         | 24         | 40.0        |
|   | Dishwashing     | 21         | 33.0        |
| Private Well<br>Or Share<br>Neighbor Well | Drinking        | 20         | 33.3        |
|   | Bathing         | 24         | 40.0        |
|   | Laundry         | 26         | 43.3        |
|   | Dishwashing     | 21         | 35.0        |
| PDAM Truck                                | Drinking        | 18         | 30.0        |
|   | Bathing         | 8          | 13.3        |
|   | Laundry         | 6          | 10.0        |
|   | Dishwashing     | 14         | 23.3        |

Continued...

**Table 5.5, Continued.**

| <b>WATER SOURCE</b>       | <b>USED FOR</b> | <b>(f)</b> | <b>% HH</b> |
|---------------------------|-----------------|------------|-------------|
| Own Pipe<br>(PDAM)        | Drinking        | 2          | 3.3         |
|                           | Bathing         | 2          | 3.3         |
|                           | Laundry         | 2          | 3.3         |
|                           | Dishwashing     | 2          | 3.3         |
| Neighbor's Pipe<br>(PDAM) | Drinking        | 1          | 1.7         |
|                           | Bathing         | 1          | 1.7         |
|                           | Laundry         | 1          | 1.7         |
|                           | Dishwashing     | 1          | 1.7         |
| Water Seller              | Drinking        | 4          | 6.7         |

water and water sources among neighbors and friends. About one-third of surveyed households shared a private well with one or more neighbors.

The second largest source of household drinking water is the City's PDAM utility. Twenty five households or 42% of sample obtained drinking water from PDAM 'safe' sources (truck, pipe, or water seller) although only six households (10% of sample) used trucked water for all purposes. This option is strongly influenced by both location and storage capability. As the large PDAM water trucks' access to Batu Merah's

crowded settlements remains limited, most households pursuing this option tend to be located in more accessible upper and non-river areas of Batu Merah where few wells exist. Although recently PDAM's delivery area has been increased by the addition of extensive hose delivery systems, there are still many households which remain isolated or lack the capital investment and/or space for water storage. These households, which include some of the poorest in Batu Merah, must rely upon water sellers, private entrepreneurs who carry water in buckets from the nearest well or public tap. Water bought from a vendor is far more expensive per unit than well water (free) or water purchased from the PDAM network, hence these households also tend to use less of it.

Finally, although the *raja's* office informs residents that river water is contaminated and unfit for household use, a small segment of the population continues to rely upon river water for various purposes. Although only one household of the sample reported using river water for bathing, laundry and dishwashing, numerous residents, perhaps unintentionally, use 'river water' when they bathe at wells bored within the river channel.

### *Health*

A single *Puskesmas* (community-level primary health center) located near the *pasar* serves Batu Merah and surrounding neighborhoods. While its primary mission remains immunization and the provision of maternal and child health care, the *Puskesmas* offers a broad array of basic health care services. Most respondents (80%) indicated that they would use the *Puskesmas* in case of illness, and 43% reported having done so in the

past year. Smaller numbers indicated that they would go to a healer (10%), private doctor or public hospital (10%).

Respondents were asked about the incidence of health problems for the entire household over the previous year. Common health problems reported by respondents are summarized as Table 5.6. Among these were upper respiratory tract infections (81.7% of sample), indigestion (45% of sample), skin ailments (41.7%), malaria (30%) and hypertension (18.3%). Frequency of reporting remained constant across all income groups and all geographic areas of Batu Merah.

In the survey, women commonly reported respiratory problems such as coughs, sore throats and hoarseness (70% of sample), as well as indigestion (45% of sample). Children's ailments most often involved acute upper respiratory infections (55%), skin ailments (primarily persistent bacterial infections – 38%), and diarrhea, while most often cited men's ailments were upper respiratory tract infections (58%) and malaria (27%). In addition to these problems, government records show that epidemics of diseases associated with poor sanitation periodically break out in Batu Merah (Lopulalan 1997). Outbreaks of cholera and diarrhea occurred in 1983, 1987, 1991, and 1995. Malaria remains endemic due to a large reservoir of infected individuals (according to one key informant, up to one-third of the population may be carriers) and an abundance of mosquito breeding sites in wells and household water storage tanks.

**Table 5.6. Commonly Reported Health Problems, Batu Merah, 1997-98.**

| <b>HEALTH PROBLEM</b>                           | <b>(f)</b> | <b>% HH</b> |
|---|------------|-------------|
| Upper Respiratory Tract Infections,<br>'Coughs' | 49         | 81.7        |
| Indigestion                                     | 27         | 45.0        |
| Skin Ailments                                   | 25         | 41.7        |
| Malaria / Anemia                                | 18         | 30.0        |
| Hypertension                                    | 11         | 18.3        |
| Diarrhea  | 10         | 16.7        |
| Parasites (lice, intestinal worms)              | 10         | 16.7        |
| Coronary disease                                | 6          | 10.0        |
| Accidents                                       | 4          | 6.7         |

Resident Perceptions of Environmental Conditions in Batu Merah

The household survey also aimed to elicit resident perceptions regarding environmental problems and satisfaction with existing services and amenities. Such inquiry allows for an examination of potentially negative environmental factors not otherwise addressed in the questionnaire, such as air pollution, noise, fire hazard and odors. Data on resident concerns and priorities concerning their immediate environment

also provide useful cross-references and verification for data pertaining to enabling and constraining factors surrounding urban environmental management.

As regards perceptions of environmental conditions (Table 5.7), outcomes fell into two general categories. In the first category were strongly polarized (positive or negative) group responses, indicating that a majority of respondents perceived a certain environmental condition as no problem or else as a serious problem. In the second category were heterogeneous responses, indicating mixed perceptions among respondents.

In the first category, a majority of respondents said that noise, polluted water and air and lack of open space were not serious problems. At the opposite end of the scale, strong positive responses were elicited regarding fire hazard (65% believed the problem was very serious and 13.3% felt that it was somewhat serious) and crowding (51.6% believed the problem was very serious and 36.7% felt that it was somewhat serious).

The fact that polluted water and air were not identified as problems is somewhat enigmatic in the face of other findings. Although a majority (75%) of respondents said that air pollution was not a problem, respiratory infections and ‘coughs’ were top ailments reported by over 80% of households. Possibly respondents do not connect the occurrence of respiratory ailments with the constant barrage of smoke – from poorly ventilated kitchen cookstoves, forest fires, cigarettes<sup>3</sup> and vehicle emissions – which most Ambon residents experience. This hypothesis is supported by observational data indicating a general lack of awareness about the dangers of smoke and a tendency of those with chronic coughs to seek medicinal cures rather than source avoidance. There also

---

<sup>3</sup> Most males over age 12 smoke.

**Table 5.7. Batu Merah Respondent Perceptions of Environmental Problems  
(Percentage).**

| <b>PROBLEM</b>                  | <b>NOT<br/>SERIOUS</b> | <b>SOMEWHAT<br/>SERIOUS</b> | <b>SERIOUS</b> | <b>TOTAL</b> |
|---------------------------------|------------------------|-----------------------------|----------------|--------------|
| Solid Waste                     | 56.7                   | 20.0                        | 23.3           | 100.0        |
| Flies/ Mosquitoes               | 31.7                   | 43.3                        | 25.0           | 100.0        |
| Rodents                         | 41.7                   | 38.3                        | 20.0           | 100.0        |
| Polluted Air / Odors<br>/ Smoke | 75.0                   | 8.3                         | 16.7           | 100.0        |
| Polluted Water                  | 68.3                   | 6.7                         | 25.0           | 100.0        |
| Salty Well                      | 61.7                   | 28.3                        | 10.0           | 100.0        |
| Drainage /Flood                 | 41.7                   | 31.7                        | 26.6           | 100.0        |
| Noise                           | 73.3                   | 10.0                        | 16.7           | 100.0        |
| Fire Hazard                     | 21.7                   | 13.3                        | 65.0           | 100.0        |
| No Open Space                   | 85.0                   | 3.3                         | 11.7           | 100.0        |
| Theft                           | 65.0                   | 30.0                        | 5.0            | 100.0        |
| Crowding                        | 11.7                   | 36.7                        | 51.6           | 100.0        |

appears to be a dearth of available information regarding smoking, and the dangers of burning hazardous materials in the home.

Similarly, the lack of concern for water pollution may reflect a general lack of conscious awareness, or a lack of association between poor sanitation practices and a high incidence of related health problems such as indigestion, diarrhea, skin ailments, and malaria. In addition to the *Prokasi* program aimed at educating the public about water pollution and its risks, a Ministry of Health program for 'environmental health' has been in place in Ambon since the 1970s. This latter program mostly aims at changing the behavior of residents, e.g., teaching them not to pollute water, to boil drinking water and to dispose of trash in a designated pick-up area (Lopulalan 1997). These programs have been implemented in a partial and piecemeal fashion and thus have failed to educate about the inter-relatedness of environmental problems and the specifics of water pollution. At present, the only behavior consistently practiced by the majority of households is the boiling of drinking water. That the rationale for this practice is only imperfectly understood is demonstrated by a widespread custom of bringing water just to the boil, rather than boiling it for several minutes as per instructions of the Health Ministry. Many people believe that this form of 'boiling' removes all hazardous elements (including pollutants) from water and renders it 'safe'. Therefore, pollution of river water and well water may be widely perceived to be a readily surmountable, hence minor problems.

Conversely, strong responses identifying crowding and fire as serious problems reflect awareness and concern of survey respondents regarding Batu Merah's densely packed, irregular settlements. A 1996 Public Works report found that the most densely

settled areas of Batu Merah typically consist of 90% unregulated 'illegal' houses; each containing two to three 'families' of four to six members (DPUCKP 1996). These settlements include numerous houses constructed wall-to-wall, many of wood or thatch construction with no water source and unreachable by emergency vehicles. Many respondents felt their houses and those of their neighbors to be highly vulnerable, and expressed concerns about the difficulty of extinguishing a fire.

By and large, these homogenous responses to survey questions are difficult to assess and may reflect a perception of conditions as 'normal and given' or an 'indisposition' to complain or to criticize government. This apparent fatalism may stem from the national traditions of social hierarchy, authoritarian norms, and government suppression of dissent. Although the political climate of Ambon tends to be somewhat less constrained than elsewhere in the country, this shared fatalistic tendency was nonetheless signaled by recurring resident statements to the effect that existing environmental conditions (including poor sanitation, and polluted water) were *biasa* or 'usual'. Thus, on one hand, such commentary by residents might be interpreted as general shared world view (at least concerning living conditions). On the other, it might in part be construed as a shared lack of awareness of the hazards posed by a polluted and degraded environment, as a result of an inability to procure and employ information; or awareness coupled with disinclination to complain. Most interesting were mixed responses regarding the problems of waste management, disease vectors and drainage/flooding. Fifty seven percent of respondents felt that the waste management situation was not serious, while 43% felt it was somewhat serious or very serious. This

range of responses is puzzling. No correlation was found between response category and income, age or ethnic status of respondents, indicating a broad range of views concerning these problems. The findings may reflect a heterogeneity of experience, or differences in levels of service over different areas (which unfortunately was not investigated in the survey). The findings may also in part reflect feelings of ambivalence toward the City's waste collection system, for while recognizing that the system operates poorly in many areas, many residents regard it as a recent success and an improvement over previous arrangements. The Department of Public Works department has also spent considerable resources on a recent advertising campaign to inform the public of its duty to participate in neighborhood-wide waste disposal activities.

While over half of respondents also identified disease vectors (rats, flies and mosquitoes) and bad drainage/ flood hazard as problems, more respondents identified these as 'somewhat serious' rather than 'very serious'. Again these findings may reflect an assumed 'givenness' of conditions, an unwillingness to appear to complain or criticize, or conscious concerns about the quality of the environment. Many respondents commented that life in Ambon remained far superior to that in the rural *desa*, indicating that urban environmental problems are commonly seen as tolerable in light of overriding advantages of increased access to trade, schools, medical care and other amenities.

A similar situation arose when respondents were queried about their levels of satisfaction with existing facilities and amenities (Table 5.8). Many respondents, even those whose responses reflected dissatisfaction, frequently described the situation as "*biasa*".

**Table 5.8. Batu Merah Respondent Satisfaction with Urban Conditions  
(Percentage).**

| <b>CONDITION</b>         | <b>NOT SATISFIED</b> | <b>SOMEWHAT SATISFIED</b> | <b>VERY SATISFIED</b> | <b>TOTAL</b> |
|--------------------------|----------------------|---------------------------|-----------------------|--------------|
| Medical Facilities       | 0                    | 26.7                      | 73.3                  | 100.0        |
| Housing Quality          | 13.3                 | 50.0                      | 36.7                  | 100.0        |
| Access: Water            | 18.4                 | 58.3                      | 23.3                  | 100.0        |
| Access: Toilet           | 25.0                 | 50.0                      | 25.0                  | 100.0        |
| Access: Bath             | 16.7                 | 56.7                      | 26.6                  | 100.0        |
| Market                   | 0                    | 6.7                       | 93.3                  | 100.0        |
| Transportation           | 0                    | 6.7                       | 93.3                  | 100.0        |
| Schools                  | 0                    | 6.7                       |                       | 100.0        |
| Employment Opportunities | 5.0                  | 41.7                      | 53.3                  | 100.0        |
| Economy                  | 10.0                 | 71.7                      | 18.3                  | 100.0        |

An overwhelming majority of respondents was very satisfied with medical services, transportation, market facilities and schools. With regard to housing quality, access to water, access to toilet facilities, and employment opportunities, over half of respondents were 'somewhat satisfied' or 'very satisfied' with their current arrangement. A majority also reported being 'somewhat satisfied' with the condition of the economy. Again these findings may reflect a preference for urban living over that of the rural *desa*, and a subsequent willingness to tolerate problems in order to enjoy perceived advantages as regards employment, schools, medical care and other amenities.

Only a minority of respondents said they were 'dissatisfied' in some way with environmental conditions. Specifically, 25% of sample indicated they were 'dissatisfied' with toilet facilities, and 18.4% felt 'dissatisfied' with access to water supply. No correlation was found between response category and income, age or ethnic status of respondents. However those who indicated dissatisfaction reside in some of the most crowded and least served areas of the neighborhood, and many of these (73%-79%) are renters whose living spaces lack a full array of facilities. This may reflect conscious awareness of degraded conditions or an expression of issues of convenience. Several respondents complained of having to share facilities with several families, or having to travel considerable distances at night to use a toilet.

Table 5.9 summarizes the major facility and utility projects that have been implemented in Batu Merah since the 1970s. This table illustrates the extent to which environmental management remains centrally controlled and operates on a short-term compensatory project basis. All projects are outgrowths of national programs, and many

were implemented by means of foreign donor aid. At the same time the table also underscores the key role played by local residents in constructing and maintaining certain environmental amenities, in particular drains, public toilets, paths and wells.

In spite of this, the overall reported level of participation in such projects was low. Only 12% of survey respondents said their household had contributed in some way to a government-sponsored infrastructure project. By contrast, respondents reported higher levels of participation in other governmental and non-governmental organizations and associations (Table 5.10). Most significantly, 21% said that their household had participated in a neighborhood improvement activity such as monthly cleanups or Friday drain cleanings and 20% said they had participated intermittently or long term with other households in other shared labor activities such as child care, waste management, shopping, or vending. In addition, nearly 37% had participated in *arisan* (variously organized by individuals, government offices, trade groups, the Protestant church of Maluku, Islamic groups, and women's groups); and over half (56.7%) reported a member or members had participated in a religious group. This differential between resident involvement in single 'management' projects versus ongoing economic, social and spiritual activities may be attributable to an urgent need to increase both income and social networking – a need which may supercede participation in programs with fewer immediate income or welfare benefits to participants.

**Table 5.9. Summary of Infrastructure and Service Programs in Batu Merah.**

| <b>PROGRAM / PROJECT</b>                  | <b>MGMT/FUNDING</b>   | <b>DESCRIPTION</b>  |
|---|---|---|
| HOUSING UPGRADING – KIP,<br>1979, 1984    | Indonesia (PU),<br>Netherlands, Australia,<br>United Nations, World<br>Bank | 25 houses,<br>volunteer labor                                   |
| MILITARY HOUSING<br>PROJECT               | Indonesia (PU, Army)  | 16 houses   |
| SLUM HOUSING<br>DEMOLITION, 1980, 1983    | Indonesia (PU, Bappeda)   | 133 houses: 73<br>Upper Batu Merah,<br>60 Lower                 |
| PUBLIC WELLS –KIP, 1970s,<br>1980s, 1990s | Indonesia (PU),<br>Netherlands, Australia,<br>United Nations, World<br>Bank | 36 public wells,<br>volunteer labor                             |
| PUBLIC TOILETS, 1970s,<br>1980s, 1990s    | Indonesia (PU, IDT)   | About 50 public and<br>multi-family toilets,<br>volunteer labor |
| FLOOD CONTROL, 1989?<br>1994?             | Indonesia (PU), World<br>Bank, others                                       | Stream dredging,<br>channelization                              |
| STORM DRAINS –KIP, 1970s,<br>1980s        | Indonesia (PU),<br>Netherlands, World Bank                                  | Lower Batu Merah,<br>volunteer labor                            |

Continued...

**Table 5.9, Continued.**

| <b>PROGRAM / PROJECT</b>            | <b>MGMT/FUNDING</b>                                 | <b>DESCRIPTION</b>                                   |
|-------------------------------------|---|--|
| RURAL ELECTRIFICATION,<br>1971-1975 | ?   | Main roads & some residential areas                  |
| SOLID WASTE MANAGEMENT, 1991.       | Indonesia (P.U.),Australia, World Bank, others      | 3 pickup sites, neighborhood organization            |
| ROADS, 1983-1986                    | Indonesia (P.U., Inpres)                            | Approximately 8 km.                                  |
| MARKET IMPROVEMENT-MIP, 1980s       | Indonesia (Inpres), Netherlands, World Bank, others | Waterfront 1, paths, drains, structures              |
| DRINKING WATER PROVISION (pending)  | Japan, Indonesia (P.U.)                             | Reservoir, piped water to pasar and lower Batu Merah |

This corresponds with Bourdieu's general notion that for the weakest sectors of society (the poor), access to resources which maintain or enhance their position in the social order ('capital') is highly restricted. Most capital is garnered in the form of social power – acquaintances and networks, family connections, and so forth. Access to local networks may be seen as more immediately relevant to people's interests than ties to central government programs.

**Table 5.10. Summary of Household Participation in Organizational and Community Activities, Batu Merah.**

| <b>ALL ADULTS (Past Year)</b>                                 | <b>(f)</b> | <b>% HH</b> |
|---|------------|-------------|
| COMMUNITY MEETING   | 9          | 15.0        |
| VOLUNTARY LABOR-GOVT.   | 8          | 13.3        |
| NEIGHBORHOOD IMPROVEMENT                                      | 13         | 21.7        |
| HEALTH POST (POS YANDU)                                       | 4          | 6.7         |
| WOMEN'S GROUP   | 6          | 10.0        |
| PKK-WOMEN'S GROUPS  | 4          | 6.7         |
| GOVERNMENT INFRASTRUCTURE PROJECT<br>(Labor, materials, cash) | 7          | 12.0        |
| SHARED LABOR-HHS  | 12         | 20.0        |
| TRADE ORGANIZATION/<br>COOPERATIVE                            | 8          | 13.3        |
| SECURITY ORGANIZATION (MEN)                                   | 1          | 1.7         |
| ARISAN  | 22         | 36.7        |
| RELIGIOUS/ PRAYER GROUP                                       | 34         | 56.7        |
| POLITICAL PARTY   | 2          | 3.3         |

The findings also reveal a tendency of respondents to under-report involvement in organizations and community activities. Initial questioning about “what groups and activities do you participate in?” frequently met with responses indicating non-involvement. However, subsequent probes about specific types of organizations and activities (such as *arisan*, women’s groups, religious activities, etc), usually elicited a greater positive response. This pattern of response was also found in Waihaong, and may again reflect a lived experience in which the definition of a legitimate ‘organization’ is provided (and enforced) by the state, and its opposite (any action not initiated or sanctioned by the state) represents an impossible category. Alternatively, this finding may signify problems associated with question design and /or survey administration, particularly as regards question construction or word choice.

### ***A Profile of Waihaong***

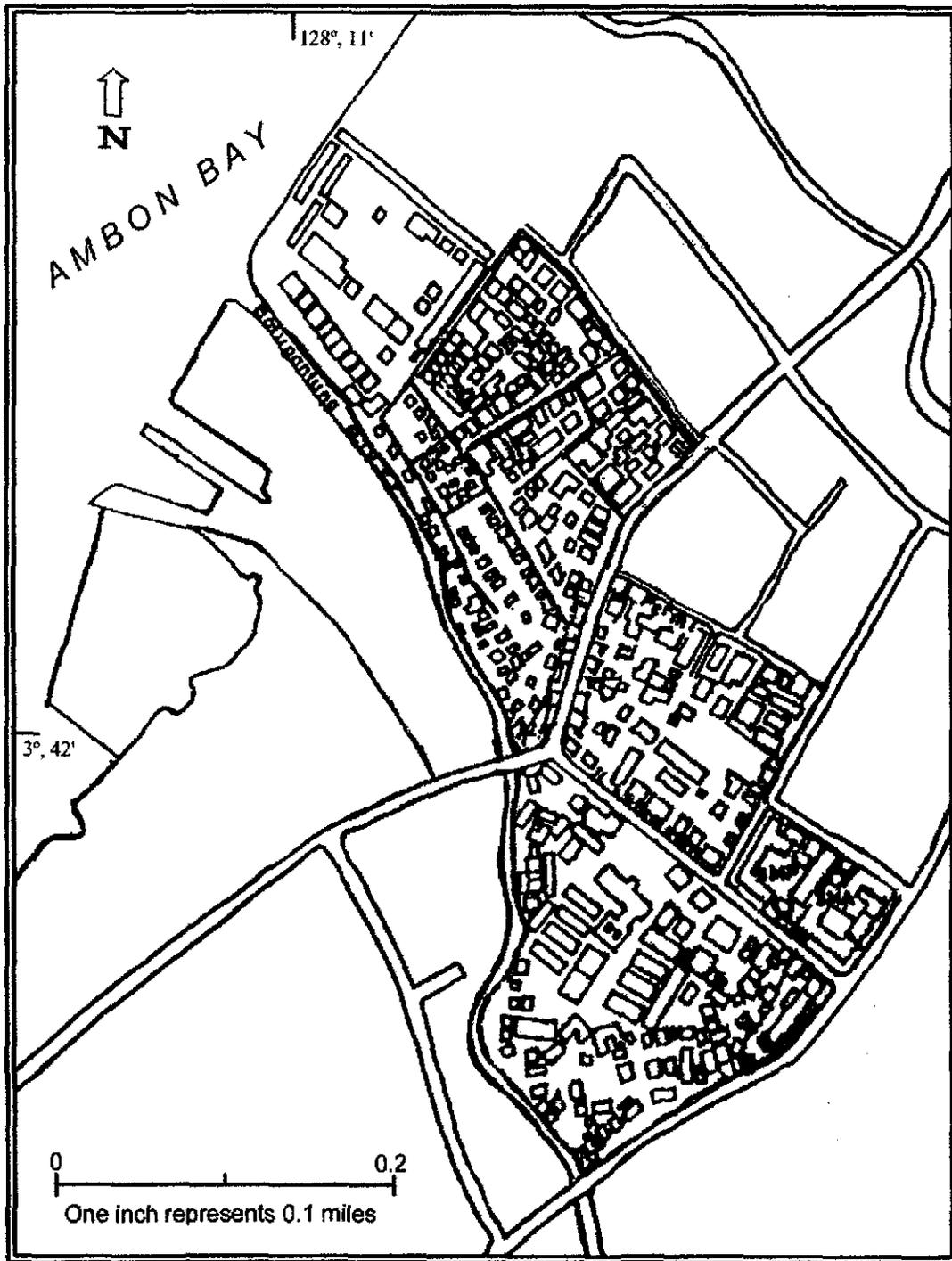
#### **Origins, Settlement Pattern and Physical Conditions**

Waihaong, also known as Wai Haong, is a low-income neighborhood in the southern portion of Ambon's central urban district. Comprising 15 hectares, it is one of Ambon's smallest and most densely crowded residential neighborhoods. Situated mainly on the floodplain of the Batu Gantung River, Waihaong’s settlements stretch from the lower slopes of the watershed to its estuary. Waihaong is bounded to the west by Ambon Bay, to the south by the river, and to the north and east by the neighborhoods of Silale and Mangga Dua (Figure 5.11). It is bisected into eastern and western portions by a

major commercial corridor, Jalan Sultan Babullah. Like Batu Merah, this neighborhood has long been a popular place to settle because of its proximity to the city center and to a major marketplace, *Pasar Gotong Royong*.

The origins of this settlement are ambiguous, but it is known that the area was sparsely inhabited by Chinese traders as early as the 1700s and later by groups from several villages of Ambon. Originally a forested site, the shoreline north of the river was first cleared for houses and shops (deGraaf 1977). Around 1810 two large complexes were built in the area. One was a dock, now PT Dok Waiman in the adjacent neighborhood of Silale. The other was a hospital, now part of Waihaong's army/police barracks. These projects drew a large population of laborers. By the mid-19<sup>th</sup> Century, a regime of local land ownership was established, and the residences of Dutch colonials mingled with those of existing residents. Mearns (1999) reports that in the early decades of the 20th Century, a number of Dutch style houses were constructed in Silale and lower Waihaong, many of which were occupied by well-to-do Ambonese Christian families. In the 1920s and 1930s, street drains and piped water were installed in one area of Waihaong. Sections of the water system and a few of the Dutch-style houses survived the extensive Allied bombing of Ambon during Japanese occupation, and today these present a dramatic contrast to contemporary structures.

By the 1920s and 1930s, populations of Butonese fisherman and other groups had also moved into Waihaong's waterfront area. The fishermen operated in Ambon Bay using small boats and throw nets, and ran a flourishing fish market along Waihaong's shoreline (Masuku 1994).



Source: BappedaTk. I Maluku, 1996.

Figure 5.11. Waihaong Neighborhood.

The economic success of this population is documented in town records showing that for some time Waihaong had the greatest number of *Haji* and *Hajah* (male and female Islamic pilgrims journeying to Mecca) in Ambon. Dutch records show that by the 1940s the shops of many Chinese merchants were clustered along Waihaong's main road (Uneputty 1972).

According to resident accounts, by the 1950s different portions of present day Waihaong were variously known as *Puluh* (near the beach), *Wai* (near the river), *Wai Hong* (along the main road), and *Kampung Kolal* (to the east of the main road). Although combined within a single administrative entity since 1965, these areas were only formally consolidated into the present *kelurahan* of Waihaong in 1979, with the promulgation of National Law Number 5. By all accounts a popular destination, Waihaong began to grow rapidly in the late 1960s. By 1975 Waihaong's population was expanding more than seven percent per year. This growth has slowed only recently due to sheer lack of space. Today Waihaong is a densely populated neighborhood (Figures 5.12-5.17).

Along Waihaong's main road, a constant stream of fast moving traffic – buses, trucks, public transportation – enters and exits the city. Commercial development dominates this main corridor, with multi-storey buildings interspersed with medium and small-scale commercial activities and homes of wealthier residents. Prominent are a hotel, restaurants, garages, warehouses, copy shops, and sundry stores. On either side of this commercial area lie dense, low and middle income residential areas mixed with numerous micro-scale commercial activities. Beyond this corridor there is little to attract non-residents of the area. The lower or 'beach' side of Waihaong is a low-lying, treeless flat



Figure 5.12. Waihaong Neighborhood: Batu Gantung River Looking Inland.



Figure 5.13. Waihaong Neighborhood: Batu Gantung River Looking Seaward.



Figure 5.14. Waihaong Business District.



Figure 5.15. Waihaong Housing.

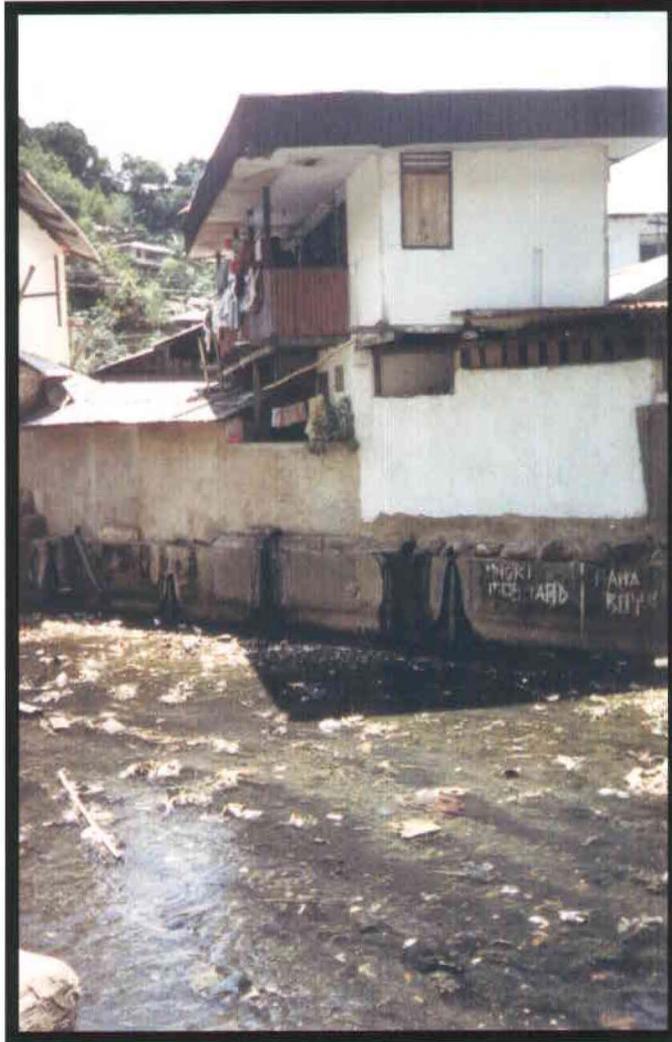


Figure 5.16. Waihaong Housing.

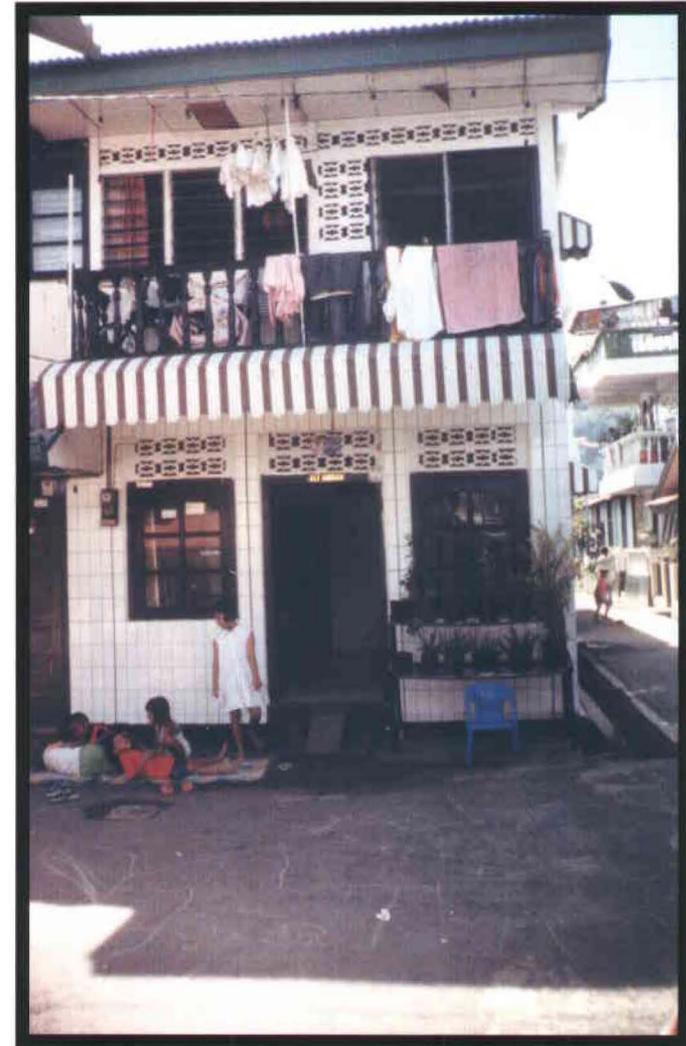


Figure 5.17. Waihaong Housing.

area with a single paved road accessible by automobile. Connected to this road is a network of five paved *lorong* (lanes) bordered by storm drains, which provide pedestrian and motorcycle access to this very densely settled area.

The shoreline, which has been filled to a height of about three meters, is dominated by a military parade grounds and a two-storey exhibition center. These facilities are used once each August for Independence Day celebrations. For the remainder of the year, the one-hectare site is heavily used by residents as open space, children's play space, pasture for animals and space for vegetable gardens.

Just south of this, in a narrow 5-meter strip along the river mouth, lies Waihaong's harbor, which was recently constructed by local fishermen. A dock area consists of a sea wall, a set of concrete steps and rings for boat mooring. Adjacent to this is an area of thatched boathouses, repair areas, net storage racks, a public toilet and public well. Also prominently located in this 'beach front' area (which is entirely hardened by a 6-foot seawall) are the *lurah*'s office, a waste collection center (a paved area bordered by concrete bumpers painted yellow), a small radio station, a *Puskesmas* (health center) and a large commercial cold storage facility for fish. Most surrounding houses are low-rise structures, but also visible are two-storey dilapidated houses along the river and several multi-storey dormitory style structures which house (mostly single male) becak drivers, students, laborers, and new arrivals in transit.

Across the main corridor, 'upper' Waihaong is a similar-sized residential area interposed by a police barracks, a dormitory for civil servants, two schools, a church, a city waste disposal site and a department of health services administration building. This

area is cross-cut by four paved roads and numerous paths and drainages. Along the river on either side of the police barracks are Waihaong's most dilapidated settlements, consisting of tightly packed multi-family rental houses and temporary shanties of new immigrants. These river areas lack paths, sanitation, water and drainage, and frequently become swampy at high tide.

### Present Day Population

According to government statistics, Waihaong's population totaled 6,203 people in 1987 and 5,500 people in 1996, for a net loss of 703 persons over nine years (BPS Kotamadya Ambon 1988b, 1993a, 1996a). Yet other official accounts indicate that population grew steadily during this period. The key to this statistical paradox lies in the method of census enumeration. Beginning in 1990, occupants of military and police barracks located in Waihaong were excluded from counts. Also excluded in the 1996 census enumeration were groups of unregistered immigrants clustered in shanties along the river in the southeastern portion of the *kelurahan*. According to neighborhood officials, these people had not (yet) reported their change of residence to the *lurah's* office. Thus, as in Batu Merah, official figures appear to under-represent actual population levels. Considering these discrepancies, my rough estimate of Waihaong's 1997-1998 population was 8,000 residents occupying a 15-hectare area (Table 5.11). Moreover, at least 4.5 hectares of the total area of Waihaong is in fact occupied by exhibition grounds, the river, a police station, radio station, schools and commercial space (mainly restaurants, garages, warehouses and hotels) (KIW1). Based upon this information, an average of 750 persons

per hectare was derived— far greater than the 458 persons per hectare density estimated in 1996 government statistics (BPS Kotamadya Ambon 1997). Again, as in Batu Merah, there are areas of Waihaong where the population density easily reaches double or triple this average.

As described below, average (mean) household size for the survey sample was 7.3 persons, far higher than the mean 4.4 persons per household reported in 1996 City statistics (BPS Kotamadya Ambon 1996a). Nonetheless, key informants in Waihaong, including the *lurah*, consistently estimated the ‘average’ number of occupants per household to be six to eight persons.

Several of the surveyed households were ethnically and religiously mixed. The sample consisted of 30 (self-identified) Muslim households (75%) and 10 Christian households (25%). This finding is not supported by 1997 LKMD statistics indicating a 64% Muslim, 35% Christian makeup (plus less than 0.5% each Buddhist and Hindu residents) for Waihaong. This difference may reflect incomplete (limited) sampling or skewed sampling, the latter being an artifact of the sampling (map) strategy, which employs a uniform grid and retains little sensitivity for concentrations of cultural, ethnic or other factors.

In fact, Waihaong is far from possessing a uniform geographic distribution of population characteristics. For example, high-density areas of civil service workers – a police barracks and a teacher’s compound – include larger concentrations of Christian residents. Under the chosen sampling strategy these residents might have been underrepresented.

**Table 5.11. Profile of Waihaong Comparing Survey Findings with  
1996 Municipal Statistics.**

| <b>ATTRIBUTE</b>             | <b>GOVERNMENT<br/>STATISTICS</b> | <b>SURVEY FINDINGS</b> |
|------------------------------|----------------------------------|------------------------|
| POPULATION                   | 5500                             | 8000 (estimated)       |
| AREA                         | 15 hectares                      | 15 hectares            |
| # HOUSEHOLDS                 | 1261                             | –                      |
| HOUSEHOLD SIZE               | 4.4                              | 7.3                    |
| DENSITY (persons/ha)         | 458                              | 750                    |
| <u>RELIGIOUS COMPOSITION</u> |                                  | SAMPLE COMPOSITION     |
| Muslim                       | 64%                              | 75%                    |
| Christian                    | 35%                              | 25%                    |
| Other                        | 1%                               | –                      |
| HH MONTHLY INCOME<br>(mean)  | 1,062,500 rupiah                 | 614,875 rupiah         |

Mean household income for the Waihaong sample was slightly higher than that found in Batu Merah – 614,875 rupiah per month. However if the greater average household size for Waihaong is factored in, the resulting monthly per capita income is slightly lower than that of Batu Merah. Distribution within income categories was roughly the same as that found in Batu Merah. Only one household of the Waihaong survey was below the official poverty line, while 5% were low income or near-poor. The majority (87.5%) fell in the middle-to-high income categories while 7.5% were high income (earning more than 1,042, rupiah or U.S. \$350 per month for a family of four). These findings are not consistent with 1997 provincial statistics which report a mean income of 1,062,500 rupiah per month for Ambon City households.

As in Batu Merah, the majority of survey respondents (97.5%) were women (Table 5.12). Only one male volunteered for the survey. The age of respondents was slightly older overall, ranging from 16 to 70 years old, with the median age being 45. Nearly all the respondents (77.5%) were between the ages of 31 and 60. A majority, 92.5% were married or widowed, while 7.5% were single.

Households were large, ranging in size from 2 to 12 with a mean size of 7.3 persons. The number of children under 14 years of age living in the household varied greatly, ranging from none to nine, with 3.5 being the mean. However the median number of dependent children was 4. Household types found were nuclear families, extended families, mothers with children, siblings living together, and groups of unrelated workers and/or students living together in barracks or rental complexes.

**Table 5.12. Profile of Waihaong Survey Respondents.**

| <b>CHARACTERISTIC</b> | <b>(f)</b> | <b>%HH</b> |
|-----------------------|------------|------------|
| <u>Gender</u>         |            |            |
| Female                | 39         | 97.5       |
| Male                  | 1          | 2.5        |
| <u>Age</u>            |            |            |
| 10-20                 | 2          | 5.0        |
| 21-30                 | 1          | 2.5        |
| 31-40                 | 11         | 27.5       |
| 41-50                 | 13         | 32.5       |
| 51-60                 | 7          | 17.5       |
| 61-70                 | 6          | 15.0       |
| <u>Birthplace</u>     |            |            |
| Ambon                 | 21         | 52.5       |
| Maluku                | 8          | 20.0       |
| Sulawesi              | 9          | 22.5       |
| Jawa                  | 2          | 5.0        |

Continued...

**Table 5.12, Continued.**

| <b>CHARACTERISTIC</b>             | <b>(f)</b> | <b>% HH</b> |
|-----------------------------------|------------|-------------|
| <u><b>Ethnic Composition</b></u>  |            |             |
| Ambonese                          | 29         | 50          |
| Other Moluccan                    | 27         | 12.5        |
| Butonese                          | 23         | 17.5        |
| Buginese                          | 11         | 10.0        |
| Other Sulawesi                    | 5          | 5.0         |
| 'Chinese'                         | 5          | 2.5         |
| Balinese                          | < 0.5      | 0           |
| Javanese                          | < 0.5      | 0           |
| Other                             | —          | 2.5         |
| <u><b>Length of Residence</b></u> |            |             |
| 0-1 Year                          | 1          | 2.5         |
| 2-5 Years                         | 4          | 10.0        |
| 6-10 Years                        | 3          | 7.5         |
| 11-15 Years                       | 3          | 7.5         |
| 16-20 Years                       | 3          | 7.5         |
| More than 20 Years                | 26         | 65.0        |
| <u><b>Housing Status</b></u>      |            |             |
| Own                               | 30         | 75          |
| Rent                              | 10         | 25          |

There are no official statistics pertaining to Waihaong's ethnic makeup. Neighborhood officials reported that about half of Waihaong's residents originate from other islands of the province or from other areas of Indonesia. This was roughly consistent with the survey findings, although ethnic composition of Waihaong's population was difficult to discern as a portion of respondents preferred to describe themselves as mixtures of various ethnic groups. Respondents were asked to choose which group they most closely identified with, but it became evident over the course of the survey that many residents identified with more than one group. This was also the case in Batu Merah, and may reflect the long history of multi-ethnic families in Ambon, and a present situation where flexibility in identity has become a useful strategy for getting along socially with family and neighbors in a globally-linked, multi-cultural setting. Or, put another way, identity in Ambon may be increasingly formed through interactions in which heterogeneity and diversity weigh heavily.

Asked to identify a single group, 50% of survey respondents identified themselves as Ambonese while 12.5% identified themselves as originating from other areas of the Moluccas. About 33% of respondents identified with one or more of the various Sulawesi groups (Butonese, Buginese, Makassarese, BauBau and Bone), while far fewer persons (2.5%) were of Javanese ethnicity or 'Chinese' (2.5%). This heterogeneity in the population is also reflected in the selection of neighborhood leaders, most of whom are of mixed ancestry and/or born elsewhere.

As in Batu Merah, only a few of the survey respondents were recent arrivals. Eighty seven percent of sample had resided in Waihaong for more than five years and

40% of sample had lived in the neighborhood for 30 years or more. Many members of this latter group were ethnically non-Ambonese, second or even third generation Waihaong residents. The representation of various ethnic groups in the Waihaong sample varies significantly from that of Batu Merah with the exception of Sulawesi groups which are found in the same proportion. The Waihaong sample had a considerably greater fraction of Ambonese – 23% more than in Batu Merah, and considerably fewer Javanese – 15.8% less than in Batu Merah. Over half (52.5%) of sampled Waihaong respondents were Ambon-born, in contrast to 37% of the Batu Merah sample. Of the Waihaong respondents born elsewhere, 20% were born in other areas of the Moluccas, while 22.5% were born in Sulawesi, and 5% were born in Java.

As regards home ownership, 75% of survey respondents reported owning their own homes, while 25% rented or lived in government quarters. In addition, 17.5% of households reported deriving a portion of household income from renting rooms or houses. That this is also an important strategy for Waihaong households is also corroborated by key informant statements that approximately 30% of housing units in Waihaong are rentals. In addition to the aforementioned civil servant housing complexes, there are at least eight large privately owned ‘dormitory’ style rental structures housing multiple families in Waihaong.

Housing occupancy is on the increase. According to key informants, there is a growing frequency of adult children and their families co-residing in parental homes; one neighborhood official stated that two to three ‘family heads’ per house is becoming

typical of such involuted households. In the Waihaong survey, 22.5% of households sampled were extended families or multiple families living together.

As in Batu Merah, many households in Waihaong appeared to be in flux.

Although no respondents reported circular migrants living in the household, 35% reported one or more members moving elsewhere to attend school or find work in the past year, or relatives (kin or fictive kin) or outsiders moving into the house over the past year. The Waihaong sample also included a greater proportion of mid-level traders, many of whom regularly spent long periods of time away from home. This mobility frequently extended to other family members as well.

### Education

As in Batu Merah, the Waihaong survey found a high level of participation in education by all groups (Table 5.13). The median level of educational attainment was approximately the same as that found in the Batu Merah survey: middle school, or about eight years of instruction. However, the Waihaong sample had a larger proportion of respondents in the highest and lowest attainment categories, whereas the Batu Merah sample had stronger representation in the mid-level categories. The larger proportion of university educated-respondents in the Waihaong sample may possibly be linked to its greater relative proportion of teachers and other civil servants (30% of households versus 20% in the Batu Merah sample).

**Table 5.13. Level of Education, Waihaong Respondents.**

| <b>EDUCATION LEVEL</b>      | <b>(f)</b> | <b>%</b> |
|-----------------------------|------------|----------|
| None                        | 7          | 17.5     |
| Primary-completed           | 10         | 25.0     |
| Middle-completed            | 8          | 20.0     |
| Secondary-completed         | 7          | 17.5     |
| Trade- completed            | 5          | 12.5     |
| College (one or more years) | 2          | 7.5      |

At the opposite end of the scale, the larger proportion of uneducated and undereducated in Waihaong appears to be linked to a significantly greater average age of respondents (45 years versus 35 years in the Batu Merah sample). A moderate negative correlation between age and education level confirms that older residents as a group are less educated than younger residents. This finding is further supported by government statistics showing a rise in education levels for Ambon's residents (and for women in particular) since the 1970s.

### Economic Conditions

Similar to Batu Merah, the number of earners per household in Waihaong ranged from one to five with a mean of 2.3 earners. A similar percentage (10%) of the Waihaong sample also reported at least one child earner in the household. These households fell mainly into the lowest income categories, perhaps indicating a use of child labor as a survival strategy in Waihaong.

To understand the economic position of neighborhood inhabitants, one must know the kind of employment opportunities available to them. With respect to this, 80% of respondents reported that their household *relied at least partially upon non-waged labor*. Primary activities are vending (62.5% of sample), trading (20% of sample), and services (62.5% of sample) but overall, households displayed great heterogeneity in the number and type of activities in which they engage (Table 5.14, Figures 5.18-5.21). More than half of the vendors in the sample were women, and 42% of sample was engaged in some type of home-based enterprise (mainly production of snack foods). Sixty seven percent of waged labor reflected civil service positions, with 30% of total sample reporting one or more members engaged in civil service work. A significant portion (17.5%) of households also reported one or more male members engaged in waged or subsistence fishing activities. A majority of individuals engaged in fishing as a full-time occupation are pensioned military men, while many others participate on part-time or as-needed basis. *Fishing imparts a great influence on neighborhood culture, as evidenced by the fact that local paths are named after various types of boats, fishing nets and fish species.*

**Table 5.14. Profile of Economic Activities of Surveyed Households,  
Waihaong.**

| <b>ECONOMIC ACTIVITY (All Adults)</b>  | <b>(f)</b> | <b>% HH</b> |
|--|------------|-------------|
| VENDING<br>(Food, Clothing, HH Goods, Oil, Specialty Items)  | 25         | 62.5        |
| TRADING<br>(Small, Medium and Large Traders)   | 8          | 20.0        |
| CIVIL SERVICE<br>(Teacher, Policeman, Office Worker, Sailor)   | 12         | 30.0        |
| OTHER SERVICE (waged and unwaged)<br>(Becak Driver, Tailor, Laundress, Salesperson, Mechanic,<br>Nurse, Laborer) | 14         | 32.5        |
| RENTS – becak, housing, land, clothing   | 8          | 20.0        |
| FISHING  | 7          | 17.5        |
| SHOP OWNER   | 3          | 7.5         |
| WARUNG OWNER   | 2          | 5.0         |
| MANUFACTURING (SMALL)  | 1          | 2.5         |

### Box 5.3. A Civil Servant in Waihaong

#### A Civil Servant in Waihaong

Waihaong has long been a popular location for government workers because of its proximity to the city center and many a long-term resident of Waihaong arrived as a result of a relative being assigned to a civil service position in Ambon. Some came to Ambon as children accompanying a parent *ditugas* (assigned to duty) in the city. Frequently offspring themselves later became *pegawai negeri* (civil servants) or married other *pegawai*.

'Emi' is a 59-year old schoolteacher who was born on the neighboring island of Saparua. At the age of six, she moved to Ambon with her parents when her father was sent to teach at a local high school. She herself attended high school and completed one year at a teaching academy in Ambon. She moved to Waihaong with her husband, a *Dinas* (city) employee, in 1972. Her husband died in 1995, leaving her as primary earner. Five of her six children, all unmarried females aged 17 to 28, and a four-year-old grandson live with her in a 5m x 7m two-storey house, while a married son lives elsewhere in the city with his own family. An upstairs room serves as a common sleeping room, while downstairs are a sparsely furnished living room and a combined kitchen/ eating area. Household possessions include a television, video player, telephone and a freezer. Although Emi owns her house, the ownership of the land beneath it is disputed. They are one of a few fortunate households on their block with a private water pipe. They share this pipe free of charge with a neighbor. Other facilities are less convenient.

**Box 5.3, Continued.**

The family shares a multi-family toilet and bathhouse with nine other households. The septic tank for this toilet was installed in a low spot and seasonally collects water, compelling the household to use a public WC in another area. When the bathhouse floods, they use a neighbor's enclosure or bathe at a public well.

Emi teaches six days a week from 8 a.m. until 3:30 p.m. at a nearby middle school and earns 265,000 rupiah per month. Like most *pegawai negeri*, she receives a monthly rice ration. She also participates in a teacher's *arisan* (rotating savings group). In the afternoons after school, she sells *es* (ice-lollies) from a bench in front of the house. In a tiny garden plot next to her house she raises vegetables and medicinal herbs, some of which she sells or exchanges. She is entitled to a pension but cannot collect it for five more years as she has only been posted at her school for a little over one year. She sometimes participates in neighborhood PKK programs including *arisan*, neighborhood greening, education and child nutrition. However most of her time is spent in income-earning activities. Two daughters work – one in a salon and one in a department store – while the others are looking for work. One daughter attended university in Ujung Pandang for a year but was forced to discontinue her study when Emi's husband died. Emi's children perform most of the household chores, help make *es*, tend the garden, shop, and care for her grandson. The family eats two meals per day, consisting of rice or *papeda*, fish and vegetables. Once each month they receive milk powder (widely considered necessary for child nutrition and whose price tripled in two months of early 1998) from the neighborhood *Pos Yandu* program.

**Box 5.3, Continued.**

In spite of their multiple incomes, Emi and her children consider their total household earnings of about Rp. 500,000 per month (the equivalent about US \$160 in 1998 and about U.S. \$50 in 2000) barely adequate. Food expenditures consume over 60% of their income, while other monthly expenses take an additional 15% to 20%, leaving only about 100,000 cushion per month for emergencies and little for savings. The *arisan*, garden, and food sales help stretch this sum, but Emi worries about the future. Frustrated at her inability to provide her children with higher education or separate accommodations of their own, she notes that in the past, a civil service position was considered highly desirable, and a means to a good life. Emi has seen this dream disintegrate, with steadily rising costs and the death of her husband. Her income barely covers the cost of food while her government medical and other benefits do not cover her now-grown children. She herself suffers from anemia (malaria) which necessitated several expensive trips to the hospital in the past year and prevented her from working for two weeks. In spite of her resourcefulness and ambition, she remains unable to reverse the erosion of her family's financial condition.

#### **Box 5.4. A Fishing Household in Waihaong**

##### **A Fishing Household in Waihaong**

About 200 individuals in Waihaong, all Muslim males, are involved in fishing. Many are third or fourth generation Waihaong fishermen, descendants of Butonese and other south Sulawesi fishing cultures. Fishing families are among the poorer groups in Waihaong today, as decades of overfishing and ever-increasing numbers of fishermen in Ambon Bay have led to conditions of strong competition for an increasingly shrinking resource. The Waihaong fishermen with their small boats and nets are easily outperformed by other groups of fishermen who have larger boats, greater range and refrigeration technology. Although organized fisher groups (which comprise approximately 75% of Waihaong's total fishing population) received IDT funding for harbor renovation and better equipment, income from fishing remains highly inconstant and unpredictable. Consequently, *fishing has become a part-time activity* for many, rather than a primary occupation. The gradual restructuring of fishing into a periodic activity (usually 10 days per month) by fishing groups has increased the appeal of this activity to individuals seeking supplemental income. Two types of fisher groups have devised two separate strategies for sharing and banking income. One type is large, usually numbering 20 or more members who pool labor, equipment and incurred expenses while banking profits until the end of a month or season. At the end of the specified period, any loans are paid off and the profits divided. The second type of group consists of only two to five people, and profits from the catch are divided each time the group goes out.

**Box 5.4, Continued.**

Besides providing income, fishing is an important social activity and a source of supplemental food— for even when the catch is small, a portion is always reserved for the crew’s immediate household needs.

Although most of Waihaong’s fish catch is sold at the main fish market at *Pasar Gotong Royong*, numerous mobile vendors also traverse the neighborhood, making fresh fish readily available to all. Women sell fish from metal pails balanced atop their heads while men sell from baskets balanced on a shoulder pole.

Tanasi is a 48-year-old fisherman of mixed Sulawesi stock who describes himself as ‘*asli Waihaong*’ or a native of Waihaong. His father and grandfather before him were successful fishermen of Waihaong, and he himself worked as a boat captain full time for a period. He says that he has ‘semi-retired’ from fishing because nowadays it is hard to make a living fishing in Ambon Bay. He and his brother still fish with a group during the spring and summer seasons, but most of the time he works as a *tukang pemborong* or building contractor, and also performs religious ceremonies. His wife sells prepared food, including barbecued fish, in the ‘beach’ area of Waihaong.

Tanasi and his wife have four children, aged 12 to 24, all of whom live at home. The family lives in a 1940s vintage Dutch-style house along the Batu Gantung river. Over the years, the family house has been enlarged and subdivided to accommodate Tanasi’s family, that of his brother, and his elderly parents. In the past year, Tanasi has also added an apartment as a rental space.

**Box 5.4, Continued.**

Although they own the house, the land beneath it is owned by a relative, to whom they make occasional 'payments' of fish, rice and other food items. The two-storey house has a single toilet, which is a covered platform overhanging the river. Downstairs at the back of the house are a bathroom and a kitchen. All the family's water comes from a pipe located just outside the front door. They share this tap with two other neighbors and the family renting the 'apartment'.

Tanasi's entire family engages in income-earning activities. His younger children, a 12 year old son and two daughters, aged 14 and 17, assist with food preparation and sales after school. His 24-year old son works as a civil servant and periodically fishes with his father's group. The eldest son describes fishing as a 'hobby', but also a welcome source of income. Through their income-earning activities and rents, the household collectively earns about 600,000 rupiah per month, at least three-quarters of which is spent on everyday necessities: food, clothing, fuel, school fees, medicines for his aging parents, and electricity. The family cut costs by cooking only twice per day, and eating fish obtained for free. They also periodically take advantage of a loan program offered through the *lurah's* office, which provides short term interest-free loans for children's school fees. In addition, Tanasi's wife is a member of a vendor's *arisan*, which allows her access to investment capital for purchasing ingredients and supplies every few months. This group also provides emergency loan services. That Tanasi's brother and his family are neighbors also provides additional security and help in times of need. The two families share the costs of utilities and home repairs as well as possessions such as a television and bicycle.

In addition to these economic activities, some residents cultivate vegetable gardens and graze animals on the grassy fields of the government parade/exhibition grounds near the fishermen's harbor. Officially prohibited, these activities are tolerated as subsistence activities for family consumption. However, a few individuals and groups also sell produce grown in this space.

With respect to household expenditure, the estimated mean monthly expenditure for the Waihaong sample was 70% of income spent on food, water, fuel and educational expenses for children. This finding may be suspect, as it is 11% higher than the mean expenditure level found for sampled households of Batu Merah.

On the other hand, other data appear to support this finding. For example, samples from both neighborhoods show that while both have a comparable mean number of earners per household, average household size for Waihaong sample is 18% greater while income per capita is slightly lower. That the Waihaong sample households engaged in a slightly higher number of income-earning activities (average 2.03 activities per household versus 1.95 activities for Batu Merah households) and had a greater frequency of child earners possibly also indicate a greater level of need. Yet, if the accuracy of the findings regarding expenditure remain in question, the magnitude of expenditure involved in itself points to a fundamental insecurity of households in Waihaong.

### Environmental Conditions

Physically, Waihaong's estuary has been transformed from a once-extensively braided river channel and coastal mudflats with wetland vegetation to a single concrete-



Figure 5.18. Plastic Goods Vendor, Waihaong.



Figure 5.19. Sundry Store, Waihaong.

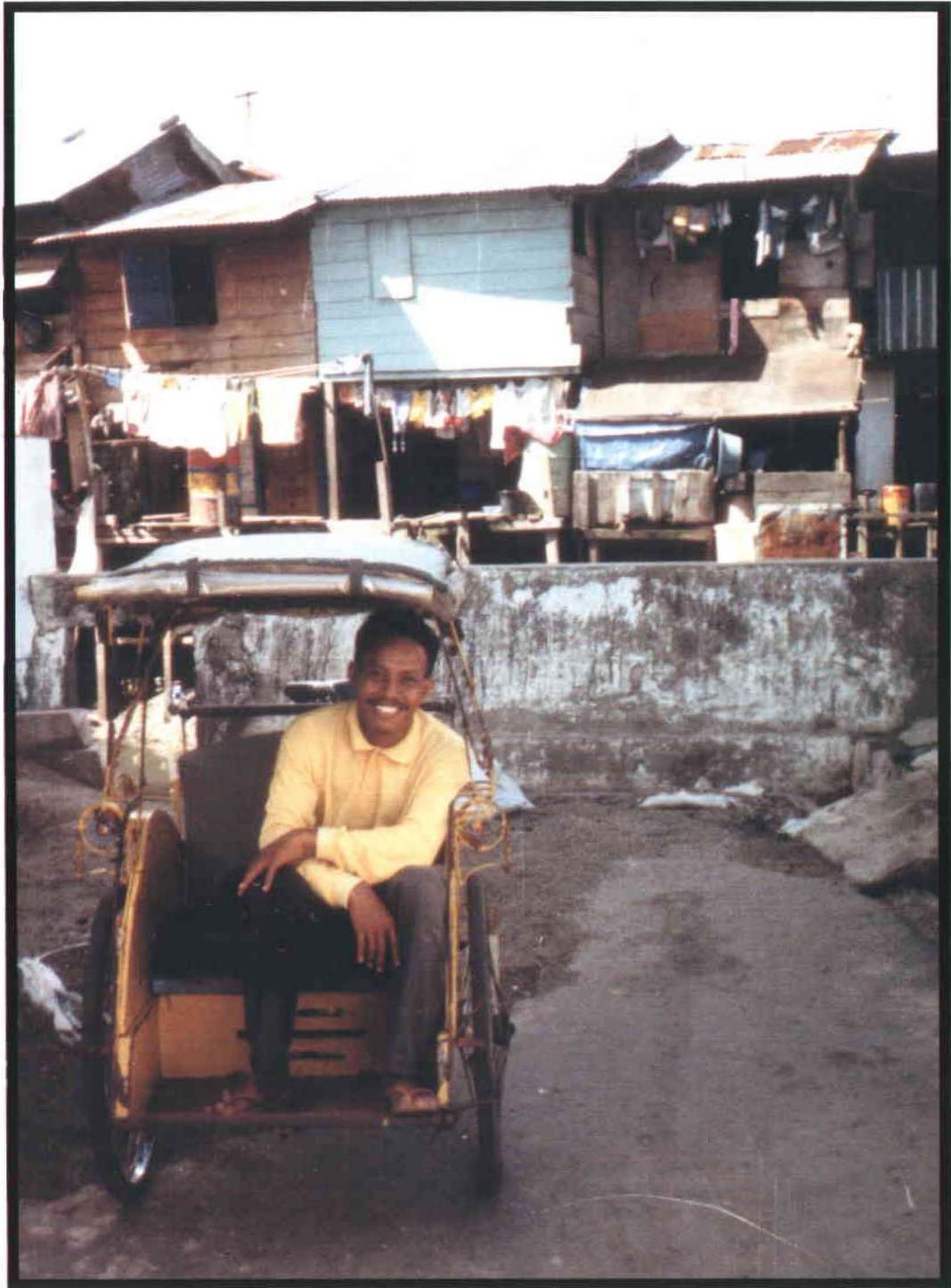


Figure 5.20. Becak Driver, Waihaong.



Figure 5.21. Street Vendor, Waihaong.

lined river channel bordered by sloping elevated fill retained by sea-walls. Sixty three houses squeeze together along a 2.5 km. stretch of the Batu Gantung river, blocking access to the channel. The river water is black and fetid; the riverbed choked with solid waste, sediment and sewage. Inland from Waihaong's 'beach' area, the topography is flat and supports little vegetation beside the occasional tree or shrub. Areas adjacent to the river are subject to serious erosion and periodic flooding

The still-visible Dutch influence on the physical landscape includes three wide streets, vestiges of storm drains and a piped water system. These early systems were not much expanded after Indonesian nationhood, and as elsewhere, residents stepped in to fill the gap, meeting their own needs for sanitation, water storage, waste management, drainage, wells, electrical connections and other amenities. Yet the ongoing lack of services and infrastructure in Waihaong remained severe, creating situations of hazard and exacerbating deprivation. Subsequent government remedial projects of the 1970s and 1980s did not even begin to match the level of need experienced by Waihaong's rapidly expanding population.

### *Housing*

Housing in Waihaong is in even greater demand than in Batu Merah. Rents are generally similar, but Waihaong is especially desirable location for civil servants because it is closer to the city center, schools, hospitals and the largest mosque in Ambon. Prices are high, and existing housing is overcrowded. Aside from the upgrading of approximately 25 houses between 1979 and 1992, under the KIP program, government has not interfered

much with Waihaong's housing status or settlement pattern. According to city statistics, about 80% of Waihaong's residential structures were built without initial permits or established title to land.

#### *Electricity*

All residences in Waihaong were directly connected to the electrical grid by 1979. Only four sample respondents reported sharing a hookup or using a self-made connection. Waihaong also has four streetlights, installed under the LKMD program using volunteer labor.

#### *Sewerage*

There is no sewer system in Waihaong. Most residents use either toilets (WCs) which discharge directly to river or sea, or toilets connected to open septic systems. In 1979, Waihaong received 10 multi-family units with septic tanks, which were installed with volunteer labor under the KIP program. Additional units were provided for the police barracks, and were installed by army personnel. Three public MCK (combination public well and toilet facilities) units were later obtained under separate IDT /KIP grants received in 1986, 1992 and 1996-7. In spite of these additions, residents presently face severe shortages. As in Batu Merah, many homes do not have toilets due to the expense or lack of space for a septic system. Over half of surveyed Waihaong households did not have a toilet, or reported sharing public or other facilities with multiple households. In addition, a serious problem arises in the rainy season when the water table rises and low-

lying areas become saturated, rendering septic tanks ineffective. Thirty percent of respondents reported that their toilets became intermittently flooded during the rainy season.

### *Drainage*

Waihaong's drainage system is a semi-orderly network of small open drains that drain to the Batu Gantung River. Most are constructed along paths, although residents living in low lying areas without paths rely upon shallow ditches dug between houses to divert water to lined channels. In general the system is inadequate to accommodate large storm flows, making Waihaong the site of periodic flooding. Since most houses are built upon fill and/or a concrete slab above grade, much of the serious flooding is confined to low lying areas along the river. However another type of annual flooding related to the aforementioned rising water table is commonplace throughout the neighborhood. Many areas quickly become swampy as soils become saturated, a situation exacerbated by a high tide, broken drains and drains clogged with rubbish. Low-lying septic tanks and drainage channels frequently overflow, contaminating local wells and the river. After storms, clogged drains quickly become pools of stagnant, mosquito infested water. Slightly under 40% of survey respondents reported having a well-functioning drainage system.

Tasked with maintaining drainage systems, the Lurah's office operates the LKMD programs for mobilizing weekly community drain cleaning and street cleaning. As in Batu Merah, these programs have met with mixed success. Initially successful, Waihaong was the recipient of a clean neighborhood competition award under the Clean City Program in

1995. The monthly clean up is a continuation of that campaign which included street sweeping, house painting, and the propagation and distribution of ornamental plants and medicinal herbs for home gardens. Over the past few years although officials report general goodwill and cooperation among the various groups, resident enthusiasm for this program has waned. Drain cleaning is a distasteful activity for most, and a potential health hazard. Mostly civil servants are pressured to participate, with the same people participating each time. Also, when some residents clean out drains, they pile sediment on adjacent paths where it promptly gets blown or knocked back into the open drains.

### *Solid Waste*

Waihaong has two designated waste pick-up sites (*Tempat Perbuangan Sampah* or TPS). The Lurah's office has worked energetically to institute an LKMD waste collection system. As in Batu Merah, each RT head is tasked with collecting a pickup fee from residents and hiring a collector to pick up trash daily door-to-door. These efforts have met with mixed success. As in Batu Merah, the program met with resistance from residents over the fee, and with difficulties in finding labor to perform the collection work. Thus the day to day solutions for disposing of wastes vary greatly among households. Most (90%) take the trash directly to a pickup site using household labor, while a minority deposit it along a nearby path or road or in the river. Because Waihaong is a small neighborhood, distances to a TPS are not great. This ease of access likely contributes to the high participation of residents in using the city collection system.

### *Paths*

Only three of Waihaong's roads are wide enough for automobile traffic. Elsewhere, housing is dense and areas are accessible only by becak, motorbike and pedestrian traffic via narrow paths or *lorong*. Approximately 15 kilometers of existing *lorong* were widened and paved in 1991 by Ambon's Public Works department. Most of the land for these paths and associated drains was taken by the government without compensation to the owners. In the crowded 'blocks' between *lorong* residents have built paths and bridges of various materials such as wood planks, poured concrete, flat rocks and corrugated metal.

### *Water Supply*

In striking contrast with Batu Merah where most residents obtain water from wells, Waihaong residents predominantly obtain drinking water from a piped water system operated by PDAM, the City utility. Although little modified since its construction in the 1930s this system extends throughout the entire neighborhood, affording ready access to a majority of residents. Ninety four percent of survey respondents said that their primary source of household drinking water was piped water (Table 5.15). Although some households have created their own connections to the system's main delivery lines, for decades a more common practice has been sharing among friends and neighbors. A majority 90% of households reported sharing a drinking water source with another neighbor (either receiving water from a neighbor's tap or sharing their own with one or more neighbors). In such 'sharing' arrangements, often a small payment

**Table 5.15. Waihaong – Household Water Use by Source and Purpose.**

| <b>WATER SOURCE</b>                       | <b>USED FOR</b> | <b>(f)</b> | <b>% HH</b> |
|---|-----------------|------------|-------------|
| River                                     | Bathing         | 1          | 2.5         |
|   | Laundry         | 1          | 2.5         |
|   | Dishwashing     | 1          | 2.5         |
| Public Well                               | Drinking        | 1          | 2.5         |
|   | Bathing         | 14         | 35.0        |
|   | Laundry         | 17         | 42.5        |
|   | Dishwashing     | 14         | 35.0        |
| Private Well<br>Or Share<br>Neighbor Well | Drinking        | 1          | 2.5         |
|   | Bathing         | 13         | 32.5        |
|   | Laundry         | 14         | 35.0        |
|   | Dishwashing     | 16         | 40.0        |
| PDAM Truck                                | n/a             | 0          | 0           |
| Own Pipe<br>(PDAM)                        | Drinking        | 12         | 30.0        |
|   | Bathing         | 8          | 20.0        |
|   | Laundry         | 7          | 17.5        |
|   | Dishwashing     | 8          | 20.0        |

Continued...

**Table 5.15, Continued.**

| <b>WATER SOURCE</b>       | <b>USED FOR</b> | <b>(f)</b> | <b>% HH</b> |
|---------------------------|-----------------|------------|-------------|
| Neighbor's Pipe<br>(PDAM) | Drinking        | 23         | 57.5        |
|                           | Bathing         | 4          | 10.0        |
|                           | Laundry         | 1          | 2.5         |
|                           | Dishwashing     | 1          | 2.5         |
| Water Seller              | Drinking        | 3          | 7.5         |

is made on a weekly or monthly basis to the tap owner. However often no mention is made if a neighbor is in arrears. Thirty percent of respondents reported that their household obtained drinking water from its own tap, while 57.5% obtained water from a neighbor's tap and 7.5% purchased water from a neighborhood water seller's tap. Only 5% said they obtained drinking water from wells.

Unlike the pattern of water usage found in Batu Merah, where residents predominantly relied upon a single source for all uses, in Waihaong, 80% of sample respondents reported using multiple sources of water strategically as a cost cutting measure.

Only a minority of households (20%) used piped water exclusively for all uses. Of those using multiple sources, public and private wells were the most common sources of water for bathing, laundry and dishwashing. This practice is facilitated by a relative accessibility of wells, as most households are able to use a neighbor's private well or one of three public wells. Eighty percent of respondents felt that well water was acceptable and safe to use for these purposes.

Only one household reported using river water for bathing, laundry and dishwashing purposes. No households reported using PDAM trucked water. As in Batu Merah, all Waihaong households boil water used for drinking and cooking, and water is primarily boiled by women.

### *Health*

A single centrally located *Puskesmas* serves Waihaong and neighboring Silale. A majority of respondents (87.5%) indicated that they would use the *Puskesmas* in the event of illness while the remainder said they would go to a private physician. Respondents were asked about the incidence of health problems for the all household members over the previous year (Table 5.16). The health problems most commonly reported by respondents were upper respiratory tract infections (82.5% of households), indigestion (40%) and skin ailments (30%) (Table 5.16). Less commonly reported were hypertension (17.5% of sample) and malaria/anemia (17.5% of sample). Overall frequencies of reported health problems were slightly lower (by an average of 6%) for Waihaong than for Batu Merah. The most significant differences between the two

**Table 5.16. Commonly Reported Health Problems, Waihaong, 1997-98  
(Frequency and Percentage).**

| <b>HEALTH PROBLEM</b>                           | <b>(f)</b> | <b>% HH</b> |
|---|------------|-------------|
| Upper Respiratory Tract Infections,<br>'Coughs' | 33         | 82.5        |
| Indigestion                                     | 16         | 40.0        |
| Skin Ailments                                   | 12         | 30.0        |
| Malaria / Anemia                                | 7          | 17.5        |
| Hypertension                                    | 7          | 17.5        |
| Diarrhea  | 2          | 5.0         |
| Parasites (lice, intestinal worms)              | 5          | 12.5        |
| Coronary disease                                | 5          | 12.5        |
| Accidents                                       | 1          | 2.5         |

neighborhoods lie in the reported frequencies of malaria and diarrhea. In Batu Merah, 30% of respondents reported one or more cases of malaria among household members, whereas in Waihaong only 17.5% – or 12.5% fewer – respondents reported incidence of malaria in the household. Similarly, in Batu Merah 16.7% of respondents reported incidences of diarrhea, but only 5% of Waihaong sample reported serious cases. These differences are not readily accounted for, and may involve such diverse variables as levels of water pollution, exposure rates, sanitation and water boiling practices, natural immunity and susceptibility, or even the ways in which the ailments themselves are defined.

As in Batu Merah, women most commonly reported respiratory problems such as coughs, ‘colds’, and hoarseness (65% of sample) indigestion (37.5% of sample) and hypertension (17.5% of sample). Most common children’s ailments were acute upper respiratory infections (75% of sample) and skin ailments (25% of sample). Most commonly reported men’s ailments were upper respiratory tract infections (50%) and coronary disease (12.5%).

#### Resident Perceptions of Environmental Conditions in Waihaong

In attempt to understand other conditions, and the range of responses, Waihaong survey respondents were asked about perceptions regarding a variety of environmental conditions and their level of satisfaction with present facilities and services.

Objects of perception included solid waste, disease vectors (flies, mosquitoes and rodents), air pollution including smoke and bad odors, polluted water, noise, crowding, lack of open space and fire hazard. In general the pattern of responses among Waihaong

respondents was more strongly polarized than that found in Batu Merah (Table 5.17). As in Batu Merah, the majority of respondents – 78% on average – indicated that in the most part these environmental conditions were not serious problems for them.

Again, these results appear somewhat contradictory, given that the environmental conditions considered least troublesome by residents (air pollution, water pollution and disease vectors) appear to be linked to their most bothersome health problems (upper respiratory problems, indigestion, skin rashes and malaria). Possibly, as previously discussed, responses may be due to shared evaluative scheme wherein the daily conditions are considered normal and given. It is also possible the findings may indicate a lack of awareness of such connections associated with cultural or educational factors. In addition *methodological errors may also have occurred in the design or administration of the survey questions regarding health.*

Yet, there were also exceptions to this apparent lack of concern or awareness. Strong positive responses were elicited regarding fire hazard and crowding. Half of Waihaong respondents felt that fire hazard was a very serious problem and 25% of respondents felt it was somewhat serious; while 32.5% felt that crowding was very serious problem and 55% felt it to be somewhat serious. Indeed crowding is felt by all, many comment upon it, and available space is often used intensively 24 hours per day. Intense crowding and an abundance of wooden and thatch structures create extreme fire hazard. In recent history a major fire in 1994 destroyed 56 dwellings in neighboring Silale (Mearns 1999:1).

**Table 5.17. Waihaong Respondent Perceptions of Environmental Problems  
(Percentage).**

| <b>PROBLEM</b>    | <b>NOT<br/>SERIOUS</b> | <b>SOMEWHAT<br/>SERIOUS</b> | <b>SERIOUS</b> | <b>TOTAL</b> |
|-------------------|------------------------|-----------------------------|----------------|--------------|
| Solid Waste       | 75.0                   | 12.5                        | 12.5           | 100.0        |
| Flies/ Mosquitoes | 65.0                   | 27.5                        | 7.5            | 100.0        |
| Rodents           | 62.5                   | 22.5                        | 15.0           | 100.0        |
| Odors/ Smoke      | 80.0                   | 20.0                        | 0              | 100.0        |
| Polluted Water    | 77.5                   | 22.5                        | 0              | 100.0        |
| Salty Well        | 90.0                   | 7.5                         | 2.5            | 100.0        |
| Drainage /Flood   | 67.5                   | 22.5                        | 10.0           | 100.0        |
| Noise             | 82.5                   | 12.5                        | 5.0            | 100.0        |
| Fire Hazard       | 25.0                   | 25.0                        | 50.0           | 100.0        |
| No Open Space     | 92.5                   | 7.5                         | 0.0            | 100.0        |
| Theft             | 87.5                   | 7.5                         | 5.0            | 100.0        |
| Crowding          | 12.5                   | 55.0                        | 32.5           | 100.0        |

As to levels of satisfaction regarding facilities and services, results were more mixed (Table 5.18). High levels of satisfaction were reported for medical facilities, transportation and schools, while responses pertaining to housing, access to water, toilet and bath, and employment opportunities mostly fell within the mid-range ('somewhat satisfied') category. As discussed above, these findings may reflect low expectation levels of residents as regards facilities and services and/or a reluctance to criticize the government. At the same time, the tendency to see existing conditions as 'normal and given' might also indicate a shared worldview in which contemplations of governmental accountability and a clean environment are simply nonexistent. This accords with political ecology's portrayal of disempowerment as a psychological as well as a social phenomenon. Different classes are imbued with accompanying forms of consciousness, ideologies and politics which derive from unequal production and other relations. Here the consciousness of the poor is shaped not only through the sharing of crowded spaces, but through a systematically imposed intraclass subjectivity which dehumanizes and commodifies lower class worker. In performing menial labor without exercising ones full potential, when compelled to view fellow workers as competitors for scarce jobs, and when viewed as labor power by state and capitalists, workers come to think of themselves and others as commodities to be bought and sold in the market.

On the other hand, for many inhabitants who arrived in Batu Merah as rural immigrants, city life has meant dramatically improved living conditions, better access to schools and health care, and improved basic services. Thus for many, the concept of city life entails few negative connotation. Even in the case of those who are 'less satisfied'

**Table 5.18. Waihaong Respondent Satisfaction with Urban Conditions  
(Percentage).**

| <b>CONDITION</b>         | <b>NOT SATISFIED</b> | <b>SOMEWHAT SATISFIED</b> | <b>VERY SATISFIED</b> | <b>TOTAL</b> |
|--------------------------|----------------------|---------------------------|-----------------------|--------------|
| Medical Facilities       | 2.5                  | 20.0                      | 77.5                  | 100.0        |
| Housing Quality          | 5.0                  | 65.0                      | 30.0                  | 100.0        |
| Access: Water            | 7.5                  | 52.5                      | 40.0                  | 100.0        |
| Access: Toilet           | 27.5                 | 45.0                      | 27.5                  | 100.0        |
| Access: Bath             | 12.5                 | 57.5                      | 30.0                  | 100.0        |
| Market                   | 0                    | 42.5                      | 57.5                  | 100.0        |
| Transportation           | 0                    | 30.0                      | 70.0                  | 100.0        |
| Schools                  | 0                    | 30.0                      | 70.0                  | 100.0        |
| Employment Opportunities | 10.0                 | 50.0                      | 40.0                  | 100.0        |
| Economy                  | 17.5                 | 65.0                      | 17.5                  | 100.0        |

with conditions (particularly in the case of extreme shortages of toilet facilities, where 50% of households surveyed did not have a toilet and 25% of respondents said they were not satisfied with existing arrangements) the improvements afforded by city life are often believed to outweigh the accompanying disadvantages including environmental problems. For most residents, having housing and a job remain top priorities, while infrastructure and services are considered of secondary importance.

Table 5.19 summarizes the major facility and utility projects that have been implemented in Waihaong. As in Batu Merah, most projects of this type were generated at the national level and many entailed volunteer labor and/or contributions from residents. As summarized at Table 5.20, overall reported participation in government-sponsored infrastructure projects among surveyed households was 20% – nearly double that reported for Batu Merah. Table 5.20 also shows that a greater proportion had also attended a community meeting or participated in a neighborhood improvement activity. This higher level of participation may reflect a relatively larger population of civil service workers – a group commonly recruited by neighborhood leaders for community service. The far greater activism of the *Lurah* and his staff may also be a factor. As in Batu Merah, the highest levels of participation occurred in other governmental and non-governmental organizations and activities. Forty five percent had participated in *arisan* and 30% reported a member or members had participated in a religious or prayer group. Again, as in Batu Merah, a tendency of respondents to under-report involvement in organizational and community activities was found. Preliminary questioning about participation frequently met with responses indicating non-involvement.

**Table 5.19. Summary of Infrastructure and Service Programs in Waihaong.**

| <b>PROGRAM / PROJECT</b>                    | <b>MGMT / FUNDING</b>   | <b>DESCRIPTION</b>   |
|---|---|--|
| HOUSING UPGRADING<br>1979 (KIP), 1992 (IDT) | Indonesia (PU),<br>Netherlands, Australia,<br>United Nations, World Bank  | 25 houses,<br>volunteer labor                                |
| POLICE HOUSING<br>1970S                     | Indonesia (PU)  | 40-unit complex  |
| GOVERNMENT HOUSING<br>1970s                 | Indonesia (PU)  | 10-unit barracks   |
| PUBLIC WELLS<br>1980s (KIP), 1996 (IDT)     | Indonesia (PU) ,<br>Netherlands, Australia,<br>United Nations, World Bank | 3 public wells<br>volunteer labor                            |
| PUBLIC TOILETS<br>1970s, 1980s, 1990s       | Indonesia (PU, IDT)   | 3 public and 10 multi-<br>family toilets,<br>volunteer labor |
| FLOOD CONTROL<br>1980s, 1990s               | Indonesia (PU),<br>World Bank, others                                     | Stream dredging,<br>channelization                           |
| STORM DRAINS<br>1975 (KIP), 1992 (IDT)      | Indonesia (PU),<br>Netherlands, World Bank                                | Construction and<br>maintenance,<br>volunteer labor          |
| RURAL ELECTRIFICATION<br>1975-1979          | ?   | All areas of<br>Waihaong                                     |

Continued...

**Table 5.19, Continued.**

| <b>PROGRAM / PROJECT</b>                    | <b>MGMT / FUNDING</b>                         | <b>DESCRIPTION</b>                                  |
|---|---|---|
| SOLID WASTE<br>MANAGEMENT                   | Indonesia (PU),                               | 3 pickup sites as part<br>of citywide program.      |
| PATHS, STORM DRAINS<br><br>1979 (KIP), 1991 | Indonesia (PU, Inpres)                        | Approximately 15<br>Km.                             |
| SHORELINE FILL<br><br>1970S, 1980S          | Indonesia (Inpres),<br><br>World Bank, others | Waterfront fill,<br>associated paths,<br>structures |
| WATER PROVISION<br><br>1970S                | Indonesia (PU)                                | Piped water to all<br>areas of Waihaong             |

However, subsequent questioning about specific types of organizations and activities typically elicited a far greater number of reports of involvement. Researcher observations in both neighborhoods also confirm that people regularly engage in multiple, overlapping networking and organizing activities. The prevalence of such 'taken for granted' activities also accords somewhat with Bourdieu's notions about the ways in which actors mobilize action e.g., individuals continue to operate innovatively within a limited range of

**Table 5.20. Summary of Household Participation in Organizational and Community Activities, Waihaong.**

| <b>ALL ADULTS (PAST YEAR)</b>                                 | <b>(f)</b> | <b>% HH</b> |
|---|------------|-------------|
| COMMUNITY MEETING   | 5          | 12.5        |
| VOLUNTARY LABOR- GOVT.  | 3          | 7.5         |
| NEIGHBORHOOD IMPROVEMENT                                      | 11         | 27.5        |
| HEALTH POST (POS YANDU)                                       | 3          | 7.5         |
| WOMEN'S GROUP   | 4          | 10.0        |
| PKK-WOMEN'S GROUPS  | 6          | 15.0        |
| GOVERNMENT INFRASTRUCTURE PROJECT<br>(Labor, materials, cash) | 9          | 22.5        |
| SHARED LABOR- HHS   | 8          | 20.0        |
| TRADE ORGANIZATION/<br>COOPERATIVE                            | 1          | 2.5         |
| SECURITY ORGANIZATION (MEN)                                   | 2          | 5.0         |
| ARISAN  | 18         | 45.0        |
| RELIGIOUS/ PRAYER GROUP                                       | 12         | 30.0        |
| POLITICAL PARTY   | 2          | 5.0         |

opportunities and constraints, even while their ‘membership’ in various arrangements and organizations remains invisible. In neighborhoods of Ambon, similarities in patterns of participation, attitudes and perceptions regarding environmental management appear to reflect shared ways of life, meanwhile agents themselves do not identify as ‘organized’ any particular group or activity. However, as previously discussed, Bourdieu’s theory lacks an analysis of the details of the creation and maintenance of collective arrangements for management at the micro-level. The final section identifies some key types of environmental management arrangements forged by households and groups and considers how these entities and their organizing activities, as both constituents of and constituting social networks, possess significant potential as transformative agents of society and environment.

## **ENVIRONMENTAL MANAGEMENT – ACTIONS AND INFLUENCES**

For each of the two study sites, multiple data sources were employed to assemble an inventory of the various environmental management actions in which households and groups engage. The primary instrument was the household survey which recorded everyday arrangements for managing the household as well as the participation of members in organized management initiatives outside the household. These two types of entities were considered as basic units of social organization, and their associative activities as indicators of social networking. The resultant catalogue of activities was

subsequently augmented with and cross-checked against key informant interview data and researcher observations in order to frame categories of actions and verify reports.

### ***Household Management Actions and Agents***

The review of the day-to-day conditions, functions and activities of households via surveys, interviews and observations confirms the assumptions regarding the role of the household as a basic organizing unit of social life. As the fundamental site for maintaining economic production and social reproduction, households are simultaneously engaged in multiple overlapping activities which include livelihood-generation, the provision of shelter, water, food and fuel, waste management, maintenance of health and safety and the rearing and enculturation of children. Thus, households evince considerable potential as managers of the environment, even as, in the self-provision of necessary services and amenities, they demonstrate a subsidizing effect on the state. The categories of environmental management actions performed by households in the two neighborhoods are summarized at Table 5.21.

Major functions and arrangements include subsistence activities such as gardening and livestock-rearing; domestic tasks such as obtaining and cooking food, obtaining clean water, vector control; tree planting and erosion control; cleaning, child care, materials recycling and the disposal of household wastes, and the maintenance of sanitary facilities, paths and drainages.

Households themselves are linked together by complex relations for maintaining their essential productive and reproductive functions, as well as by familial and other

ties<sup>4</sup>. These relations enable households to respond to both internal needs and external changes. Although far more work needs to be done to decipher the details of these relations, flexibility in management appears to be maintained through two fundamental strategies in particular: economic diversification and pooling of income and labor. Diversification involves the pursuit of multiple and varied sources of income and, to an increasing extent, the entry of women and children into the work force. Sharing income and splitting up tasks also strengthen a household's abilities to maintain its living standards and adjust to changing environmental conditions. In both neighborhoods the poorest households were those which had the fewest earners and had the lowest capacity for diversifying. These households were also clearly more vulnerable to environmental threats. Most entailed either male-headed 'nuclear' households that had multiple dependents and held prohibitions on female (non-domestic) labor; or female-headed households with multiple dependents. These households also tended to have the fewest links to other households or to organized management activities in the neighborhood.

### ***Multi-Household and Group Arrangements***

The various management actions and relations within individual households in turn intersect with a multitude of relations and organizational practices external to the household. Although again, only that segment of arrangements directly related to environmental/ habitat management functions are considered in depth here, both the number and types of actions which fell in to this grouping were considerable. Table 5.21

---

<sup>4</sup> Of course, cross cutting these arrangements are other relations involving among other things, age,

shows the array of overlapping actions performed by the various agents, providing a sense of the multiplicity and complexity of such arrangements. For both neighborhoods, the most common categories of inter-household and group arrangements were sharing of space and amenities, labor pooling, labor trading and arisan.

### Sharing Strategies

Multiple sharing strategies were prevalent. A readily observed category was the sharing of available open spaces. Such space is at a premium in the crowded environs of both neighborhoods, so common areas were not only in constant use but were also continuously being negotiated and renegotiated. Public wells and bath spaces accommodate a multitude of users which include (besides bathers and those collecting water) playing children, laundresses, water vendors, food vendors, and chauffeurs washing cars. Streets and paths are also heavily used for children's play and adult socializing, and their margins serve as storage space for bicycles, toys, motorcycles, vendor's carts, recyclables and livestock pens and as drying space for laundry or food items.

In Waihaong, a few larger common areas (essentially spaces surrounding government owned facilities) are used periodically by groups, mainly for gardens or livestock grazing. For example, on one site a Javanese women's food vendor group negotiated for use of a plot of land in order to produce two crops of corn over a seven-month period, and a religious group obtained a similar arrangement for grazing several

---

gender, kinship, health status, and mobility

**Table 5.21. Urban Environmental Management in Ambon's Neighborhoods:  
Actions and Agents.**

| ACTION                                     | NAT'L<br>GOV'T,<br>INT'L<br>DONOR | PROVINCE | CITY | NH | MULTI-<br>HH,<br>GROUP | HH |
|--|-----------------------------------|----------|------|----|------------------------|----|
| SHARE WATER                                |                                   |          |      |    | X                      |    |
| SHARE ELECTRICAL                           |                                   |          |      |    | X                      |    |
| SHARE TOILET                               |                                   |          |      |    | X                      |    |
| SHARE BATH                                 |                                   |          |      |    | X                      |    |
| TRADING LABOR                              |                                   |          |      |    | X                      |    |
| BUILD WATER<br>STORAGE/TAP                 |                                   |          |      |    | X                      | X  |
| GARDENS/ANIMALS                            |                                   |          |      |    | X                      | X  |
| TREE PLANTING                              |                                   |          |      |    | X                      | X  |
| MATERIALS<br>RECYCLING                     |                                   |          |      |    | X                      | X  |
| CHECK SOIL<br>EROSION                      |                                   |          |      |    | X                      | X  |
| POOLING LABOR &<br>SERVICES, OTHER         |                                   |          |      |    | X                      | X  |
| MAINTAIN STORM<br>DRAIN                    |                                   |          |      | X  | X                      | X  |
| MAINTAIN<br>FACILITIES (WC,<br>WELL, PATH) |                                   |          |      | X  | X                      | X  |

Continued..

**Table 5.21, Continued.**

| ACTION                           | NAT'L<br>GOV'T,<br>OR<br>INT'L<br>DONOR | PROVINCE | CITY | NH | MULTI-<br>HH,<br>GROUP | HH |
|----------------------------------|---|----------|------|----|------------------------|----|
| WASTE DISPOSAL                   | X                                       |          | X    | X  | X                      | X  |
| VECTOR CONTROL                   | X                                       |          | X    | X  | X                      | X  |
| PROVIDE TOILET,<br>SEPTIC SYSTEM | X                                       | X        | X    | X  | X                      | X  |
| BUILD/ RENEW<br>HOUSING          | X                                       | X        |      |    | X                      | X  |
| ARISAN                           |   |          |      | X  | X                      |    |
| PROVIDE PATH                     | X                                       |          |      | X  | X                      |    |
| PROVIDE WELL                     | X                                       |          |      | X  |                        |    |
| PROVIDE<br>LIGHTING              | X                                       |          |      | X  |                        |    |
| COLLECT USER<br>FEES             |   | X        | X    | X  |                        |    |
| MONITOR<br>HOUSING               | X                                       |          | X    | X  |                        |    |
| MONITOR VECTOR                   | X                                       | X        | X    |    |                        |    |
| FLOOD CONTROL                    | X                                       | X        | X    |    |                        |    |
| PROVIDE STORM<br>DRAIN           | X                                       | X        | X    |    |                        |    |
| PROVIDE WATER<br>PIPE            | X                                       |          | X    |    |                        |    |

Continued..

**Table 5.21, Continued.**

| ACTION                  | NAT'L<br>GOV'T,<br>OR<br>INT'L<br>DONOR | PROVINCE | CITY | NH | MULTI-<br>HH,<br>GROUP | HH |
|-------------------------|---|----------|------|----|------------------------|----|
| PROVIDE ROADS           | X                                       | X        |      |    |                        |    |
| PROVIDE<br>ELECTRICITY  | X                                       | X        |      |    |                        |    |
| OTHER LARGE<br>PROJECTS | X                                       | X        |      |    |                        |    |
| POLICYMAKING            | X                                       |          |      |    |                        |    |

several goats and growing animal fodder for the remaining portion of the year. Additional portions of this space were parceled out among other groups and individuals at various times for gardening, laundry drying and other uses. The site was also a favorite with children for ball-playing.

Other sharing arrangements entailed the joint use and maintenance of one or more facilities and amenities. Most commonly shared among households were toilet facilities (57% of households in Batu Merah and 40% of Waihaong households), bathing areas (40% of Batu Merah households and 30% of Waihaong residents), wells (nearly 100% of all households in both neighborhoods), piped water (30% of Waihaong households), and

electrical connections (23% in Batu Merah and 10% in Waihaong). Arrangements spanned a broad spectrum from outright gifts with no expectation of reciprocity, to equal sharing of costs and benefits, to reduced use prices or loose exchanges, to precisely calculated cash arrangements. It was also not uncommon to find combinations of these arrangements operating among households. A good illustration of this situation involved the variable arrangements of one Waihaong household for sharing water with other nearby households. This 'owner' household had both a private well and piped water. The well water was brackish and could be used only for bathing and washing dishes and clothing. The residents allowed four of their neighbors (one of whom was a relative) unlimited free access to the well - any more, they said and the well became over-used. One neighbor who shared the well regularly dispatched her young son to bring water from the well to the owner's *kamar mandi* (bathing shed). This neighbor would also occasionally wash clothing for the owner. Another of the neighbors placed a small kiosk in the area adjacent to the well (which also adjoined a well-traveled path) and acted as a sentinel during the day, watching over the house while the owners were away at work. This person also saw to it that the 'common' area around the well and kiosk was kept clean. The household which was related to the owners included a carpenter who was frequently called upon to help with projects around the well-owner's house. The fourth household comprised a family that had lived in the neighborhood for decades and had a lengthy history with the owners which included sharing the well.

The arrangement with the piped water tap at the front door of the dwelling was rather different, as the household 'shared' with multiple others. The first neighbor and

the relative were allowed unlimited access and asked to pay on an 'as needed' basis – in other words, whenever the owner needed cash. Similarly, the second neighbor was frequently extended water 'on credit' in a loose exchange arrangement which included the opportunity to barter items from the kiosk. All other users were charged a flat fee of Rp. 250 per bucket in what appeared to be a money-making enterprise for the household.

### Labor Pooling

Outside as well as inside households, the pooling of labor is common and plays a critical role in many group arrangements. Individuals and households pool labor in a number of formal or informal arrangements for sharing benefits and costs associated with various subsistence activities and domestic tasks. The previously alluded to Javanese women's garden group and the livestock raising group represent such arrangements. Less formal and more frequent are reciprocal arrangements between women of different households for daily domestic tasks such as child care, waste disposal, cleaning, cooking, obtaining water, and shopping. In each of the Batu Merah and Waihaong survey samples, 20% of respondents said their household had participated intermittently or long term with other households in such activities. Informal labor sharing agreements for maintenance of common facilities –especially drainages, paths, toilets, and common house walls or roofs– are also regular occurrences. These maintenance agreements typically involve more men, as do joint arrangements for certain activities such as construction and erosion control.

### Labor Trading

A related activity is labor trading. A somewhat more formal type of arrangement, trading extends beyond the realm of simple reciprocity or resource sharing to the areas of professional services and fixed exchanges. Trading most often occurs where skilled labor is required for a project such as house framing, plumbing, roofing, electrical wiring, or stone masonry. Exchanges may involve cash, but often other services or labor, food and material goods, or a combination of these, are involved. Repayments or exchanges are often made on a staggered or indefinite timetable.

### Arisan

Both neighborhood samples reported high incidences of membership in *arisan*. In Batu Merah, nearly 37% of households reported one or more members participated in *arisan* (variously organized by individuals, government offices, trade groups, religious groups, and women's groups); in Waihaong 45% of households reported members had participated in *arisan* (mainly organized by occupational group and women group). These revolving credit associations, while not specifically organized around environmental concerns, provide a flexible form of savings and emergency loans which might readily be used for such purposes to help buffer resource crises and avert environmental problems. Residents cite, for example, using funds for repairing shelters, building a water storage tank, or ameliorating the effects of a flood.

### ***Participation in Government - Led Management Initiatives***

A range of government projects and programs implemented in the neighborhoods have been described in the foregoing pages. As household and group networks and management arrangements also overlap to varying extents with these initiatives, a brief recap of their types and the manner in which each relates to the organizing efforts of residents is in order.

Generally speaking, management efforts initiated by government are either large scale infrastructure projects constructed by government agencies and contractors or 'collaborative' infrastructure and service projects and programs. The former include piped water distribution systems, flood control structures, roads, power plants and electrical distribution systems, harbors and airports, and housing projects for civil servants. Essentially no public participation from inception to implementation occurs in such projects. User fees are collected by provincial, city and neighborhood level agencies for associated services such as water, electricity, and waste management.

The latter 'collaborative' infrastructure and service projects and programs entail medium-and-small scale projects for provision of facilities and amenities, as well as ongoing programs at the neighborhood level. Medium-scale projects emanate from the national level, and are commonly coordinated via provincial level officials, but are initiated by governmental and quasi-governmental agents at the neighborhood level. Implementation depends in large part upon contributions of labor or funds (to hire labor) from local residents. In Batu Merah and Waihaong, these projects include housing refurbishment activities and neighborhood-level installations or repairs of wells, toilets,

bathing facilities and drainages. These projects occur only sporadically, and labor is almost exclusively performed by men. Although the resultant developments tend to make life easier for some, as we have seen for both neighborhoods the overall reported level of household participation in such projects was low. In Batu Merah only 12% of survey respondents said their household had contributed in some way to a government-sponsored infrastructure project in the past year. In Waihaong, the percentage was higher – 20% – although most of those who participated were bureaucrats, a group actively recruited by neighborhood leaders for community service. The conclusion to be drawn from this is perhaps that there is wide recognition that these types of projects benefit only a limited segment of the population, notably bureaucrats.

Far more pervasive, and of particular interest to the present discussion are the smaller scale projects and ongoing programs of government such as solid waste collection, vector control, neighborhood clean-ups, *arisan* and small-business promotions, nutrition and health and welfare monitoring. These are largely coordinated via quasi-governmental agents, in particular the wives of neighborhood leaders and associated PKK groups. In other words, as in the realm of ‘spontaneous’ organizing activities, the largest part of the ongoing day-to-day management tasks initiated by government in the neighborhoods are organized and carried out by women.

Perhaps because of this, these ‘government’ activities intersect with many locally generated group activities. In fact, both types, although they do not necessarily involve the same individuals, tend to blur together. Over a period of time, residents may, for example, participate in several credit schemes initiated variously by government,

neighborhood bureaucrats, or gender-or-religion-based associations. Or a long- or short-term group collaboration around a government resource may enable or spawn further connections. One example of this involved a woman who regularly volunteered to host child nutrition 'clinics' in her home, because these events enabled her to convene her vendors group. The group could socialize while they assembled packaged foods, with refreshments and child care provided. In another instance, a group of women temporarily joined forces to take advantage of a government small-enterprise support program. This group, which received several loans to start up their *kue* (small cakes) businesses, subsequently formed a child care cooperative. Arrangements for the joint purchasing of ingredients and baking of *kue* additionally expanded into wider reciprocal arrangements among households for shopping, cooking, dishwashing and gardening.

Thus we see that households and groups are actively engaged in multiple activities which directly or indirectly enhance their opportunities to (among other things) manage habitats and to increase material welfare. Additionally, although at first glance most of these activities related to environmental management appear to be small scale and spontaneous, in fact they are neither discrete nor disengaged, but are linked with a whole assemblage of other ongoing networks and associations which reach from the level of the household to the neighborhood and beyond. Thus heterogeneous activities can be seen as linked together by complex sets of relations, which are not bound down to any particular interest, bearer, type of bearer or locale.

### ***Summary: Findings of the Neighborhood-Level Research***

This chapter has presented the research findings concerning the *conditions of existence, and the types of environmental management activities* in which various actors engage at the local level. Concerning the conditions of existence, the data indicate numerous environmental and social similarities between the two neighborhoods including a preponderance of low income residents engaged in service and ‘informal’ economic activities, comparably low levels of environmental quality, and similar resident attitudes towards environment and environmental problems. On the average, households in both neighborhoods were found to be poorer and have larger household sizes than averages reflected in city statistics. The larger size generally reflected more grown children and other (usually income-earning) adults in the household, rather than more children. Economic diversification strategies were also widely apparent, with individuals and households engaging in multiple vending, trading and service sector activities. While data concerning expenditures is difficult to confirm, it also appears that pre-*Krismon*, in both neighborhoods at least 60% to 70% of household income was being spent on food and daily needs.

Overall physical living conditions were also poor in both neighborhoods. Although differences were found in terms of prevailing forms and distribution of environmental degradation and resident access to infrastructure and services, most residents experience a lack of sanitation, shortages of clean water, and ongoing exposure to pathogens, smoke and chemical pollutants, as well as flood, fire and other hazards. These conditions constitute threats to human health and productivity in both neighborhoods.

In spite of this, residents of both neighborhoods indicated a strong preference for city living. While many still maintained strong family and other ties to rural areas, they felt the overall quality of life in the city to be better than that encountered elsewhere. Moreover, residents also shared generally optimistic views regarding the condition of the urban physical environment (i.e., that problems are not serious except for crowding and fire hazard), and expressed similar levels of satisfaction regarding existing infrastructure and services (generally somewhat or very satisfied except for toilet facilities). This tendency was coupled with a general unawareness of basic environmental concepts. For example, few have considered their situation as residents of an island, or concepts such as sensitive island ecosystems or natural hazards avoidance. Poor environmental quality, like constraints on public expression and action, thus appears for many to be part of a 'normal' taken-for-granted universe.

Thus many similarities are found among residents in the two neighborhoods as concerns living conditions, attitudes, shared propensities, and beliefs. Together with the parallels in political culture and styles of action in such areas as marriage, family planning, and education as discussed in Chapter 4, these commonalties may support a model of *habitus*. In this instance, the residents of Ambon's neighborhoods may be seen as sharing a collective *habitus* shaped by larger (predominantly state-driven) patterns and structural influences. Yet at the same time, many similarities in attitudes and perceptions may also be understood via a political ecology analysis as based in class relations and class consciousness as well as shared environments.

Moreover the micro-level data gathered from the case-study neighborhoods do not support Bourdieu's associated notion of the formation of uniquely local or otherwise differentiated *habitus* (for example, a distinct Ambonese *habitus* or a bureaucratic-class *habitus*). According to Bourdieu, this is constantly happening (even the wider structures are being mediated and transformed by the local). However there are no signs of an incipient (or vestigial) 'common imprint' at the neighborhood city, or class levels. In fact the case study findings indicate, at the same time, great heterogeneity both inside and outside of households, and myriad ongoing small-scale self-organizing activities occurring simultaneously in both neighborhoods. Neither of these is anticipated in Bourdieu's model. Elsewhere he has characterized urban heterogeneity as a sort of temporary disequilibrium state of society, the consequence of which is that local action is increasingly impelled by the influence of larger fields of power, and *habitus* is weakened. A similar destabilizing role is attributed to conditions of conflict and to globalizing forces. The theoretical and practical limitations of this stance are illustrated in the present case, where the researcher encounters all these types of forces simultaneously converging on Ambon. Here, it becomes impossible to distinguish the particular influences of *Krismon*, rapid population growth and social conflict upon local society and *habitus*.

Bourdieu's model is similarly insufficient for assessing the particulars of the 'everyday' mechanisms of social self-organization which he claims are the driving force for the reproduction of society. Instead one encounters a structuralist trap where the hierarchical social structures that mold the individual remain paramount. Clearly, then, Bourdieu's model of societal formation and practice only partly addresses what is

happening in the neighborhoods of Ambon. While it may be that local social relations are partly composed of the playing out of powerful forces (via class relations, *habitus*, and other means), it is also apparent that local organizing activity constitutes an important exercise of power wherein influence is reciprocally exercised and interests are mutually served. Here network theory provides a means of conceptualizing households and groups as (re)structuring, transforming agents. Its more dynamic and ‘volitional’ view of agency allows us to see that there is something else which allows power to amass at the bottom, and transit through hierarchies and groups. Moreover, the sheer multitude of household and group arrangements documented in both neighborhoods indicates that these types of small-scale arrangements constitute the primary force for environmental management. Developing networks are thus seen as crucial elements of not only societal formation, but of day-to-day survival.

*Thus, the research suggests that the problem of urban environmental management cannot be entirely explained by structural analysis of state versus individual relations. Neither can it be explained solely through micro-level analysis of social networks and organizational behaviors. Understanding how local urban environmental management occurs requires analysis of both the macro and micro-level factors and influences. Here, political ecology’s multi-level, combined view of social life as composed of both structured and reflexive elements has provided a useful framework for thinking not only about the complex and diverse settings of Ambon’s neighborhoods, but about factors which may facilitate or constrain environmental management. The extended view of agency provided by a general application of network theory – seeing individuals,*

households, and groups as actants integrated within dense social networks – supports an ecological view of human-environmental relations. It enables a consideration of how arrangements may be fashioned and maintained (or degraded or destroyed) by the various types of influences such as ongoing organizing activities, social linkages, lifestyles, physical aspects, and power relations. A search for factors within this framework, or in other words, for ways to enhance local environmental management, leads to a dual focus on (1) supporting existing organizing actions of households, groups and local government, and (2) dismantling systematic factors which constrain efforts to improve physical environments. As regards the former, although the level of detail afforded in the household surveys allowed only for a general inventory of participation and household connectivity, several important categories of activities which sustain environmental management efforts were identified, namely: sharing strategies, labor pooling, labor trading, and *arisan*. Moreover, women, who play a subordinate role in society, are identified as the primary organizers and laborers in most environmental management activities. Practically speaking then, efforts to improve physical environments must acknowledge women's multiple roles in social reproduction and seek ways to promote the building of these types of local networks. Initiatives which remove social obstacles (such as those concerning status and rights) and improve income and access to resources (whether it be information flow, childcare, clean water, education, access to loans or what have you) are examples. Finally, as we have seen, existing arrangements are situated within wider networks of relations. Multiple overlapping activities involve a wide variety of interests and a range of actors which includes households, groups of

households, various levels of government, and other networks and organizations. Thus, no universal sectors, entities or interests can be identified. Instead, finding ways to enhance such arrangements within their particular contexts is paramount.

As regards systematic factors which constrain efforts to improve physical environments, although people of Ambon have autonomous power, their ability to *organize and mobilize for management is severely constrained by hierarchical and class structures and a system of governance which limit access to information and resources, keep wages low, and neglect the health, education, and welfare of a large portion of the national population.* Enlarging the political sphere and the realm of citizen participation would create the impetus for a broader range of essential organizing and linking activities, and devolving fiscal and administrative powers to local government produces local capacity for broad scale integrated management. Without an inclusive political system that is capable and willing to respond to citizen needs and claims, the practical initiatives addressed above will amount to little.

## CHAPTER 6

### THE POLITICAL ECOLOGY OF URBAN ENVIRONMENTAL MANAGEMENT – FINDINGS AND OUTLOOK

This investigation has sought to increase understanding of the phenomena of urban environmental degradation and *local self-management of the urban environment*, through in-depth descriptive case studies of two neighborhoods of Ambon. A political ecology framework provides a means of linking together discussions on environmental practices, livelihood concerns, politics and existing social organization, leading to a deeper understanding of the relationship of urban residents to their environment.

This concluding chapter sums up the research findings laid out in Chapters 4 and 5, and considers their overall implications for practice and for theory. The chapter is in four parts. The first part summarizes the main research findings in each of the study's three areas of inquiry and considers the implications of these for policy and planning. This then leads to a *second section in which problems that arose during research and the validity and generalizability of outcomes are discussed*. The third section presents an evaluation of the research components. This includes an retrospective appraisal of political ecology as a theoretical and methodological guide to research, and a consideration of the utility of Bourdieu's theory and network concepts as adjuncts to political ecology

in the study of local environment and local practice. A final section reflects on the area of urban environmental research and makes recommendations for further study.

## **RESEARCH FINDINGS: OUTLINE AND SIGNIFICANCE**

Multiple data sources were employed via a triangulation process to obtain information in two main areas: 1) the conditions of existence in neighborhoods of urban poor in Ambon; and 2) ways residents in these neighborhoods act (collectively and otherwise) to manage the environments around them. A further area of inquiry involved a search for key factors which condition local actions.

### ***The Conditions of Existence***

In probing the details of local existence, neighborhoods are considered within a political ecology framework as historically situated, complex amalgams of socio-political influences, relations and practices occurring across multiple geographic scales. Positioned within one of the poorest and most isolated regions of Indonesia, Ambon city remains poorly understood, and poorly served by government. Politically and territorially, this 'city of minorities' presently maintains a peripheral status within the national hierarchy, strongly dependent upon the center and weakly linked to most other cities and regions. The rapid growth of Ambon over the past three decades has mostly been propelled by initiatives from above, including bureaucratic and military expansion, and the targeted expansion of trade, large-scale infrastructure, and services in this regional port city.

Arguably, the economic discourses and practices of the state, including a concerted effort to woo foreign investment to regional centers, has accelerated the influx of global influences as well. Ambon is increasingly linked into the global economy and global culture via media, international retail chains and new products from the global marketplace. Trends of urbanization and economic change at global and regional levels may also be exerting effects through increased mobility and the shifting composition of labor, as well as changing ethnic and religious identities.

The Indonesian government further wields enormous power over space and daily life right down to the micro-level of the neighborhood. The state establishes the territorial and political boundaries of neighborhoods, and through infrastructure, language and programs influences the means by which local society defines, creates and reproduces itself. Residents of Ambon are accustomed to living within a hierarchically ordered neighborhood, where state intervention in everyday life includes among other things controls on information, suppression of politics, 'one-size-fits-all' social welfare programs, and compulsory reporting on such activities as travel, contraception and organizational affiliations. By its nature such a setting reinforces values of homogeneity and conformity, as well as systems of patronage. Nevertheless, the neighborhoods still evince great heterogeneity in backgrounds and behaviors, and as a whole display limited overall cohesion and integration, at least where neighborhood-wide or city-wide organizing activities and projects are concerned. Diversity is also written on the landscape as a *mélange* of land uses, construction styles and building materials.

Data gathered through official and lay accounts and this researcher's observations confirm that environmental degradation is at a serious level in both neighborhoods to the point where overall quality of life is compromised. Residents, most of whom are engaged in low-paying trading, vending and service occupations, experience poor housing, crowding, polluted water, and air, ongoing exposure to multiple health threats, a lack of services and insufficient and decaying infrastructure. Meanwhile, the local fisheries of Ambon Bay, which have provided primary sustenance for generations of Ambon's residents, are in serious decline due to pollution, ecosystem modifications, and overfishing, while the degradation of surrounding rivers, forests and agricultural lands result in water shortages, climate change and intensified risk from natural hazards. Local government, while tasked with the monitoring and management of the urban setting and environmental resources, lacks the capacity to plan, administer appropriate programs or otherwise cope with the multitude of problems. These limitations include an inability to act as a mediating influence on foreign capital and its economic, ecological and spatial effects

Residents of both neighborhoods were found to share remarkably similar attitudes and perceptions regarding existing environmental conditions and their own roles in environmental management. When asked about the seriousness of existing conditions and the potential for fixing environmental problems, respondents were generally optimistic about the condition of the environment both now and in the future. With the exception of fire hazard and crowding, most residents of both neighborhoods felt that none of the existing environmental conditions investigated posed a serious problem. Residents of

Waihaong and Batu Merah also indicated that they do not consider the government to play a significant role in improving everyday living conditions. This accords with Bourdieu's notion of a 'taken-for-granted' world of practices, or shared assumptions about reality. A shared *habitus* resulting from long-standing national politics of depoliticization (as effected through direct control as well as indirectly through various mechanisms of corporatization, co-optation and ideological hegemony) might explain for example, attitudinal similarities including acceptance of 'the way things are' and regarding government neglect of public welfare, environmental degradation and health concerns. It may be that residents do not see everyday living conditions as threatening health and livelihood, or even as substandard, but simply as *biasa* – a shared everyday phenomenon. These shared propensities might also be considered within the political ecology framework as manifestations of underlying class relations (class consciousness), as perpetuated by the state, transnational corporations and international lending institutions.

An associated aspect of people's 'tolerance' for poor environmental conditions is that even that minority who perceive living conditions to be worsening overwhelmingly indicate a willingness to put up with such conditions. This appears to be connected to a widespread social perception that urban conditions are far superior to those found in the village. An urban way of life is also associated with the now declining but still high-status bureaucratic culture of Ambon.

A final factor which may undergird the general attitude of acceptance toward poor living conditions is a limited understanding of environmental and health topics; particularly the systematic nature of many environmental factors and the interconnections

between everyday actions and long-range or wider scale impacts. Such concepts are not part of public school curricula or government public awareness campaigns, and in keeping with the small scale nature of most activities and programs, most residents' perceptions of environment remain primarily focused upon physical conditions at the micro (household or street) level, not upon larger systems or behaviors. *Connections between poor health and poor environment* may also be obscured by competing cultural explanatory factors which influence perceptions of what constitutes a 'clean' or 'healthy' environment.

Similarly, attitudes and perceptions regarding people's own roles in environmental management support various possible interpretations. When asked who is responsible for the environment, most respondents said they felt residents themselves are responsible. However, they did not have a sense that their own everyday individual and collective efforts constitute significant management *in the wider view*. *Instead, respondents tended to repeat official versions of what community participation meant: assisting in government sites and services initiatives, helping with the occasional cleanup project, and so forth.* The related findings that most residents do not consider themselves as likely participants in initiatives to manage the environment, and that they consistently underreport participation in various organizations and community activities, could reflect conscious avoidance of government projects due to financial, political or other factors. In addition, the fact that many everyday management actions remain invisible, even to the doer, may signal a dominant evaluation that the only legitimate 'participation' or group memberships are officially sanctioned ones. A shared experience shaped by imposed

social hierarchy, authoritarian norms, and suppression of dissent could also create a sense of fatalism, such as that revealed in the finding that people tend to perceive government as a sometime provider of infrastructure and services for the connected; meanwhile preserving little expectation or trust that it will act on their behalf.

### ***Urban Environmental Management – Actions and Organizations***

Alongside the wider, structured aspects of daily life, this investigation examined self-organizing activities at the micro level. The investigation of the day-to-day actions of households and groups confirms the initial assumption that individually and collaboratively, people do take part in a wide array of organizing activities at various spatial and organizational levels. While no systematic search was conducted for mechanisms by which people converge, and organize, it appears that many activities cohere mainly based upon propinquity and/or occupation, with affinities found among households, family and close neighbors, the small-scale trading, vending and services groups, and civil servants. People constantly forge relations of reciprocity and enroll in groups within overlapping networks. The overall diversity of actions defies ready classification and/or quantification. However a few generalizations may be possible as concerns overall efforts to manage the urban environment.

First, such local organizations and networks appear to constitute the primary impetus for urban environmental management. In other words, the bulk of environmental management efforts emanate from small-scale organizing activities of individuals, households and groups of households, rather than from government-initiated programs or

projects. No distinct neighborhood or citywide patterns of environmental management behavior based upon group affiliation were readily distinguished. Arrangements involved both short term and and long term reciprocity, with the most common categories of organizational strategies employed in both neighborhoods being sharing, labor pooling, labor trading, and the formation of *arisan*. Short term arrangements mainly involved loans or response to catastrophe, while longer term arrangements involved aspects such as childcare, procurement of food and water, or the use of common space.

Second, that such efforts are self-financed indicates that they are vulnerable to economic shifts and changes in household composition. Here the household appears as an important buffering mechanism via the provision of resources and redistribution of labor and income. *Arisan* also may also play an important role in establishing and maintaining many types of collective efforts, as well as a means of cushioning households and individuals against sudden economic shocks or cyclical changes.

A third finding concerns the key role of women in environmental management. In most households, female household members devoted the most time and effort to daily household maintenance and reproduction, as well as to collective management of the neighborhood environment. These activities also frequently intersected with productive activities at the household and inter-household levels. In contrast, men's domestic participation focused more on home construction and repairs, maintenance activities such as storm drain cleaning, and bill paying. Men were also less likely to engage in home-based enterprises. Although these findings may simply reflect a reporting artifact – as female household members constituted a majority of those surveyed – researcher

observations and key informant data generally confirm the prominence of women in day-to-day neighborhood management.

***Implications of the Findings for Policy and Planning: Improving Urban Environments in Ambon***

Several implications for future interventions to improve urban environments emerge from the above findings. First, the great number of existing self-management efforts and their underlying networks and organizational aspects need to be formally recognized and their details better understood. This also includes a reversal of previous programs which proceed from the assumption that government-generated activities themselves create and support such networks and organizational behaviors. Practically speaking, the small-scale collective mechanisms in place constitute the chief functioning system of management in the neighborhoods. However, such organizations and arrangements remain outside the purview of mainstream planning efforts, i.e., dominant management culture. Arrangements which have remained invisible must become visible and integrated in the planning and management of settlements through a concerted effort on the part of government and donor agencies to recognize and include local actors and groups. This includes acknowledging the vital roles women play in everyday management of the physical environment, and identifying links between livelihood and management arrangements at the local level.

This program of engagement with local groups and individuals positions the planner in the roles of advocate, facilitator and partner. Exposure of power mechanisms

and interest-gathering may also be facilitated by local planners and NGOs who provide publicity, public education, and technical and other support; and by researchers who continue to reveal local conditions, arrangements (and perhaps local success stories) through their investigations.

Planners can also act to increase resident awareness of environmental concepts, consumption patterns, daily practices and ways of living. Particularly crucial are shared concepts of environmental quality and the necessity of maintaining essential support systems for future generations. These concepts provide a basis for decisionmaking on everything from product choices to job creation to choosing among industries and development projects. In the case of Ambon such shared knowledge may be particularly important as a way of building social cohesion in populations with widely divergent backgrounds and interests. Such information could easily be made available via schools, businesses, and ongoing media campaigns.

The basis of job creation must also be environmentally sound, rather than promoting livelihood at the expense of environmental quality (as is presently the case). Economic development should entail activities that do not degrade environmental resources in the city or in surrounding areas. Environment as discourse also offers a potentially powerful tool for establishing Ambon's identity as a global center of tourism and scientific study. Maluku's great marine and coral reef biodiversity, and distinctive terrestrial flora and fauna could provide the basis for numerous economic activities including scientific tourism, aquaculture, transportation, and the production of food and other commodities for the tourism trade. The slogan "Ambon Manise" could be reprised

as a local shorthand for environmental quality and livelihoods based around protecting environmental resources.

Various existing policy tools and programs which thus far remain largely unimplemented could also play more important roles. A key example is the AMDAL environmental impact assessment process which could prove highly valuable as a decisionmaking tool particularly if provisions for public review were implemented. Indonesia's coastal management laws could also provide a basis for environmentally sound development in Ambon. A strengthened framework of civil and administrative law and a supportive civil court system would greatly contribute in ensuring effective implementation of managerial and protective functions.

Building the capacity of local actors also means creating the wider social, economic and other conditions conducive to group, household and individual management efforts. Such conditions include enlarging citizen participation in planning and decisionmaking and improved access to information, education, infrastructure, health care and other resources. These in turn require transformations at the national level, including more decentralized and democratic forms, fair and honest government and competent governance. Certain basic rights, including rights to expression and self-organization, access to the legal system and to public records, must also be put into place.

At the same time, building capacity of government to monitor, plan for, and manage environments at all levels must also be a priority. In particular, there is a need for an integrated national system of management administered at the regional level, that combines functions of urban planning, environmental management, and economic

development. This system should include a clear authority for monitoring environmental quality per existing standards, and provide a clearing house for compiling economic, environmental and other data which is presently scattered among various agencies and departments. Again, public disclosure of such data is also needed, as part of an overall information access campaign. Given the position of Maluku as an emergent resource export center with increasing linkages to multinationals, international financial institutions and the global economy, the provincial system of administration must be a strong, accountable system.

Municipal government should also be restructured and its management capacity enlarged by consolidating various fiscal and administrative powers and functions presently fragmented among regional, district, subdistrict and other agencies and offices. Improving administrative capacity will also require dependable funding and improved skills. The city could cooperate with provincial agencies on multiple fronts including the provision of urban environmental services, enforcement of standards, and outreach and education for environmental quality and pollution prevention. City government can also work closely together with neighborhoods to provide information and determine appropriate technologies and financing schemes, as infrastructure and services need to be technically feasible, affordable, and in demand by residents.

Thus future urban environmental management projects must entail the increased involvement of both society and (improved) government. Mobilizing to deal with larger and longer-term environmental concerns also requires actively seeking collaborative arrangements with entities such as environmental and social NGOs, business, and others

who can act as intermediaries between local groups and government, and assist with leadership, building organizational capacity, and the tailoring of particular solutions (Lee 1994, Hikam 1999). Due to the historically weak position of Indonesian NGOs, these may need to link with international NGOs to meet long range needs for information, funding, skills and research. Inter-government networking, for example between city and regional government counterparts in various parts of the world, is another potential source of information and support. In the case of Ambon's rich marine resources, existing international organizations with a dual focus on marine biodiversity and social sustainability could serve as catalysts, linking with grassroots groups, the state and business community to help promote green industry and diversify the economy through such activities as eco-tourism, aquaculture and agricultural industry. Local business could also work together with NGOs and local communities to address the provision of essential facilities and services, provide training and skills development opportunities and promote the restoration of supporting ecosystems.

## **EXAMINATION OF FINDINGS**

This section examines problems and uncertainties of the research process, discusses some questionable findings and summarizes the implications of these for the overall validity and generalizability of the research outcomes.

### ***Problems and Uncertainties of the Research Process***

Most of the problems and unanticipated events that arose during the research process have been discussed in the foregoing pages. Difficulties and uncertainties encountered in the research process generally fell into two categories: those concerning the conditions of data gathering *itself* and those concerning the researcher's own background, skills, personality and actions. In the former category were problems of unavailability of baseline or background data, geographical variants in settlement patterns (in particular the presence of government compounds) and access thereto, red tape, a preponderance of women respondents in the household survey (although the households themselves were chosen at random), the onset of economic crisis and the (related?) emergence of unanticipated types and categories of data. These are for the most part uncontrollable factors, although the effects of some such as gender skewing might possibly have been diminished.<sup>1</sup> Overall data quality might have improved by a refined survey design, such as the two-tiered strategy described in Chapter 3 in which fewer data collected from a far greater number of households in a neighborhood are augmented by a smaller number of highly detailed surveys and life histories. An improved research design might also include repeat or longer-term surveys.

The second category included known or possible factors of gender, age, language, ethnicity and other characteristics or behaviors of the researcher(s) which may have

---

<sup>1</sup> In this case, by conducting preliminary interviews to determine a strategy to include equal numbers of male and female respondents. Alternatively, investigations of gender-based differences in reporting could be conducted to test the assumption that women overall possess more knowledge of household affairs.

influenced the quality or quantity of data gathered; and other interpretive concerns associated with conditions of diversity and sustained social change.

### ***Questionable or Weak Findings***

The influence of the above factors – both individually and collectively – on outcomes is difficult to assess. However two questionable outcomes which indicated possible problems with data were (1) an overall lack of strong correlations among household survey variables (see Appendix C); and (2) household survey respondents' self-reported low level of participation in organizations and activities – which contrasted with researcher observations and key informant reports. The absence of any strong correlative evidence in the household survey was originally thought to signal problems with the sampling frame or question formulation. However, later correspondence was found between some findings of the present study (namely demographic, economic and social data from the Batu Merah neighborhood survey) and findings of a subsequent government study. This correspondence indicates at least some external reliability of results or else amazing coincidence. Although there is no immediate way of determining which is the case, this set of events reflects the difficulties inherent in studying highly heterogeneous neighborhood populations.

The survey respondents' under-reporting of participation in organizations and activities is striking. It is not inconceivable that this outcome is a product of unidentified cultural subcontexts, linguistic errors or other researcher communication errors. It might also, however, be interpreted as a logical response of agents positioned at the bottom of

the social economic hierarchy who consider themselves outside the 'formal' organizations of the state.

In addition to these possibly weak or questionable findings, the investigation of influencing factors might have been expanded and improved. This might be achieved by expanding the scope and detail of key informant interviews and the use of additional data sources, such as focus groups. While enlarging the study, such a design could enable the collection of more in-depth information on the perceived effects of certain factors on specific types of organization or activity, while providing additional means of cross-checking or triangulating among data sources.

***Implications for the Validity and Generalizability of Research Outcomes.***

As described in Chapter 3, case study research generally strives for internal versus external validity. Internal validity involves how well the researcher represents the reality and perceptions of the other, whereas external validity involves generalizability to other cases. The goal of this research was not to identify universal causal relations, test hypotheses, or search for universally applicable solutions. Instead the core of the research sought to uncover and describe various actions and relations operating at the local neighborhood level, and to relate these where appropriate to complex actors, networks and processes external to the neighborhood. Efforts were made throughout the research process to maximize the internal validity of research outcomes by employing multiple methods and multiple sources of data in design, testing questionnaires and interview guides, and attempting to minimize bias and other errors in the collection and coding of

data. Even so, in terms of internal reliability (repeatability), it is unclear if the same researcher using the same research design would find similar results. On one hand, it is likely that many of the outcomes would be comparable. However, an exact replication of results is not always possible in a study of this type as individuals and societies themselves are in constant flux. Moreover, the neighborhoods of Ambon have recently undergone a period of economic and social crisis with far reaching repercussions for the city's population, governance and social relations. Thus no subsequent case study of this type (even on the same place and same people) could be expected to produce exactly the same findings. However, it would prove instructive to compare these 'snapshots' of activity within neighborhoods of Ambon with subsequent studies of post-crisis conditions and activities.

External reliability (replicability) infers that the research is repeatable in another setting. This should be possible (and is encouraged) with the above proviso regarding research design modifications. Other reasons for repeating this study are discussed further below.

## **THE RESEARCH COMPONENTS – AN EVALUATION**

How did the political ecology research framework, Bourdieu's theory and concepts facilitate the research process and the understanding of the social phenomenon of local self-management of the urban sphere and the conditions surrounding it?

### ***Political Ecology as a Framework for Research***

Rather than providing a single theoretical or methodological template for research, political ecology offers an array of theoretical and methodological tools which can be applied contextually to a given setting. On the whole the political ecology approach allowed for consideration of a broader array of factors and relationships than are customarily addressed in urban environmental studies. The present framework enabled a multi-layered, multi-level examination of complex factors and processes that produce the urban habitat and society, encompassing environmental transformations at the neighborhood, city and regional levels, national governance and political economy, and cultural, economic and spatial shifts at regional and global levels, as well as highly detailed examinations of the everyday actions of individuals and households. Thus, overall, the breadth and flexibility of the political ecology framework offer evident advantages for the study of complex urban settings where multiple environments, cultures and social relations commonly occur. In this instance the political ecology framework facilitated an understanding of how unequal power relations and the viewpoints of dominant classes and groups are maintained across local, regional, national and international levels, and how these may have variously contributed to the appearance and perpetuation of degraded environmental conditions in Ambon. At the same time, the political ecology framework facilitates a consideration of how micro level sources of power may accumulate at the bottom and be translated via ever larger groups in order to achieve social transformations.

The multitude of household and group arrangements documented in both neighborhoods indicates that together these types of small-scale arrangements constitute the primary force for environmental management. Developing networks are thus seen as crucial elements of not only societal formation, but of day-to-day survival.

In terms of understanding, interpretation of results was also guided by the political ecology framework. As with any other conceptual framework, political ecology research findings and conclusions are significantly shaped by its initial assumptions and questions. Yet, as ‘development critique,’ political ecology goes further, addressing issues of environmental integrity from an explicitly political and normative perspective. Its transformative agenda entails greater social equity and justice. Thus, although policy recommendations emanating from the political ecology research entail something of a tautology, the overriding hope and aspiration is for studies to bring the weight of empirical evidence to bear upon such underlying positions. Further, while political ecology research efforts have as a whole, implicitly or explicitly carried this agenda forward, there is a need for more interchange among its various theoretical perspectives.

### ***Bourdieu’s Theory of Society and Network Theory***

Bourdieu’s theory of society and ethnomethodology bolster the conceptual power of political ecology as a research framework. In particular, Bourdieu’s theory of practice has contributed to a general understanding of how urban conditions in Ambon could simultaneously be products of influences at various levels. Urban residents of Ambon are considered as embedded in environment and society, via overlapping webs of power,

influence and activity. The concept of *habitus* has proved a useful device for thinking about the possible origins of social and economic arrangements and local response to environmental conditions, via the registering of successive influences of larger economic and political 'fields' of power on local society and environment. We have seen for example, how historical patterns of centralized authoritarian government, exclusion, and limited access to resources shape the physical landscape and mold cultural understandings of citizenship, rights, property relations and entitlements. In turn these surrounding conditions and meanings shape people's evaluative schemes regarding nature and actions to manage the urban environment.

Bourdieu's concepts also contain an ecological quality. Not only is there a 'genetic' quality to *habitus* and structures wherein these are wholly or partly transmitted intra-group or intergenerationally, but the making and remaking of social life is cast as a dynamic process of shifting equilibria. Power is accrued via the mobilization of networks (or the ability to draw on the economic, social, cultural or symbolic capital of others). This dynamic process entails a material component which includes daily habits and bodily inscribed characteristics as well as the reorganization of physical space. Thus, for Bourdieu, structure and agency, environment and humans, are mutually determined and reinforced.

Bourdieu's own interests also generally mirror those of political ecologists in promoting action freed from domination. Bourdieu directs the researcher to adopt an ethnographic stance, expose mechanisms that create or reproduce the dominant class or group, and strategically target 'fissures' where individuals, communities, NGOs and other

actors may further intervene to promote power shifts. This hermeneutic and radical approach will be more or less successful depending upon the ability of researchers to muster the requisite social legitimacy, political linkages and financial resources to facilitate change.

At the same time the researcher also faces some thorny practical questions regarding the use of the *habitus* concept. Two main concerns mentioned in the foregoing pages are the conceptual ambiguity of *habitus*, and the problem of researching the reproduction of class and other relations in the face of major disruptions. As we have seen, *habitus* by definition is an unbounded therefore ambiguous concept, one whose identification and analysis will depend upon where (and when) one is looking, and the specific social effects to be emphasized. This creates degrees of opacity and imprecision which can make characterization of relations and processes involved in the reproduction of social relations problematical. Although Bourdieu himself identifies different types of *habitus* and employs various contrasts (multiple versus unitary *habitus*, broad versus narrow *habitus*, weak or strong *habitus*) these categories do not aid in identifying and analyzing processes of social reproduction in the urban setting of Ambon.

Problems of identifying and separating key relations and processes are compounded by uncertainties surrounding the particular influences of the urban setting. For example in Ambon, where conditions of social and cultural heterogeneity, poverty (low social power) have long been the norm, how is one to interpret and weigh changes produced by rapid urban growth and the Asian economic crisis? Here, Bourdieu's additional suggestion that in such situations people often do not necessarily operate per

embedded dispositions of *habitus*, but increasingly per immediate interests and the influence of larger fields of power, does little to clarify matters.

In this study, social network theory (in its broad sense) was employed as a means of balancing this highly structured view of existence while helping to unravel questions of the power of the local social environment. For it is clear that even as Bourdieu's framework emphasizes the centrality of hierarchy and domination, patterns of reciprocity and cooperation constitute the other side of social existence. An application of social network theory recognizes no metaphysical human essence or universal categories of structures of social existence, but instead views the construction of the local as a complex affair, molded by the interplay of innumerable social, political, cultural, economic, physical and technological relations and forces.

In short, combining these perspectives has thus enabled an investigation into how modes of thinking and behaving, opinions, interests, beliefs, norms, and habitats are created and shaped not only by particular elites with particular interests, but also by countless ambiguous social forces. Of course the two perspectives cannot be reconciled, as the question of the relative importance of social structures and human agency can never be definitively settled. However it is imperative to employ such eclectic combinations, for only by understanding the power of the social environment, in its various concentrated and dispersed forms, do we become better equipped to navigate or reform it. Engaging in this intellectual dialectic has, hopefully resulted in a more diachronic, processual analysis, wherein the extremes of both views are minimized.

## **REFLECTIONS ON URBAN ENVIRONMENTAL RESEARCH, AND SOME RECOMMENDATIONS FOR FURTHER STUDY**

The continuing crisis of degraded cities of the poor is a crisis which requires politically informed, environmentally focused, action-oriented research. There is a need to develop a body of research that emphasizes the urban environment and its unique context dependent human-environmental relationships. In the short run, such studies can provide location specific, detailed baseline data on environmental and social conditions as the first step in more appropriate interventions. This currently represents a huge gap; as we have seen even basic information on socio-economic conditions and the state of the environment in urban centers is lacking. In the longer term, building a collection of case studies could provide a wide range of studies for comparison and at the same time bring increased attention to the nature of urban environmental problems and local capacity. More will be said in a moment about this latter aspect, but ideally such a body of work would increase awareness beyond the limited realm of academics and city officials, to NGOs, international donor agencies and beyond.

The generation of empirical case studies can also inform revisions of political ecology and its allied theory via the confrontation of such theory by real life conditions of urban existence. Continuing refinements of theory by political ecologists are needed to advance the study of the urban environment. In particular, political ecology still lacks a vibrant internal discourse on the meaning of development. It also needs better theoretical tools for investigating the day to day micro-aspects of urban social dynamics. Here

combining Bourdieu's theory of practice with network theory has provided a preliminary way forward. While a fitting framework for the present application in Ambon, other perspectives, or combinations of perspectives may prove more appropriate for other settings and times.

Although this exploratory study took a broad brush approach to the case study, gathering large quantities of data from limited samples of households and individuals in selected neighborhoods, again it might prove instructive to compare outcomes of this study with those obtained via other sampling strategies such as the two tiered strategy described in Chapter 5. This strategy entails asking fewer questions of a larger overall number of households, with in-depth life histories gathered from a portion of that population.

Another useful strategy would be to simultaneously generate multiple studies in different cities which then could be cross-compared, such as the comparative poverty and environment research of Douglass, Lee, and Lowry (1994) in Bangkok, Bandung, Hong Kong, Seoul, Bombay, Colombo, and Manila. Such an approach provides a greater scope and magnitude of study and would likely increase overall reliability of results. A program of multiple descriptive urban environmental case studies might also entail repeat studies and / or long-term studies of individual urban settings. The environments of cities are ever-changing, and repeated observations of social reality are not observations of exactly the same reality. Furthermore, gaining an understanding of how local practice revises structure may require employing a multi-generational framework. Ongoing neighborhood

and household level studies could offer good insights about social relations and environmental management as they change over a period of time.

Last but not least, additional studies of urban environmental management by local actors are needed to expand visibility and promote efforts to support existing actions and factors which enable them. This requires at least two fundamental shifts in the way most political ecology research is presently conducted. The first is a shift in focus away from causal aspects of environmental degradation towards a concern with ways of enhancing capacity to deal with it. Studies can help to identify more specific ways of supporting existing efforts by various groups, through a more detailed investigation of the myriad actors, arrangements, social networks, and linking mechanisms that promote environmental management. Second, political ecology research should make use of more participatory research formats which include local people as co-researchers. More participatory research may also entail an *advocate or activist role for the researcher*. As Nietschmann (1983), has pointed out, whenever research entails aspects of survival for local people, the researcher is by definition involved in local politics. Bourdieu and others are more adamant that the role of the social scientist is to act (politically) to reveal domination. The advocate or activist researcher can assist in facilitating channels for action and exposing relations of domination. In keeping with political ecology's emancipatory and liberatory interests, this study might have entailed a more participatory process. However, early attempts to create such a process failed, in consequence of economic crisis and unconsolidated interests. Although ultimately it is possible that various benefits may have been conveyed by the 'outsider' role of the researcher, it is

certain that outcomes produced within a more inclusive research process involving local co-researchers would differ greatly from those presented here. Hopefully, Indonesia's now expanding political sphere will facilitate the increased use of such inclusive approaches in the near future.

## APPENDICES

**APPENDIX A.**  
**SURVEY QUESTIONS - ENGLISH**

No: \_\_\_\_\_ Neighborhood \_\_\_\_\_ Date \_\_\_\_\_

- A. Age of Respondent [Actual]  
 B. Birthplace (1= Ambon, 2=Maluku, 3=Java; 4=Sulawesi; 5=Irian; 6= Other)  
 C. Ethnicity (1= Ambon, 2=Maluku, 3=Java; 4=Sulawesi; 5=Irian; 6= Other)  
 D. Marital Status (1=Married; 2=Single; 3=Divorced, 4=Widowed)  
 E. Religion (1=Moslem, 2=Christian; 3=other)  
 F. Education Level Attained (0=None, 1=elementary, 2=middle school, 3=high school, 4=vocational; 5=college)  
 G. Members of Household and their ages, sex, birthplace, relationship to you, present place of residence, economic activities. Other family members not living at home? Any in NH?  
 H. How long has each lived in Ambon city? In this neighborhood? (Yrs in NH)  
 I. From where did you move to Ambon? Why?  
 J. Economic activities HH members engage in. How much earned from each.mo? (occupation) (personal income)  
 K. Where do these activities take place?  
 L. About how many hours per day spent on housework?  
 M. What major assets and consumer goods does the HH own such as house, land, telephone, camera, motorbike, automobile, becak, sewing machine, television/video player, refrigerator, radio, other appliances. Do you own any livestock? (Total HH assets)  
 N. What are your major HH expenses every month? How much on food, school, water rent, taxes, kerosene, medicine, electricity, telephone, transport, etc? Do you trade/give any of these to neighbors or others? (Monthly HH expenses)  
 O. What forms of transportation does the HH employ and does anyone in the HH own any of them? (Transportation=1=walk; 2=public;3=private)  
 P. In the last year, has anyone in your household had malaria, diarrhea, respiratory problems, parasites, blood fever, skin problems?. If anyone gets sick, what do you do? Is healthcare affordable?  
 Q. How many meals per day does the HH eat? Do you have any concerns about insufficient food? Do you eat fish every day? How often do you eat chicken, eggs, meat? How easy is it to purchase healthy food in Ambon? (Meals/day) (Fish/day)  
 R. Do you own/rent/other? Is the land rented or owned? (1=Own 2=Rent; 3=Inherit or other)  
 S. What arrangements/payments do you make for housing? (Rent paid)  
 T. When was this house built? Dimensions? How many rooms? How many levels? (Sq m/person)  
 U. How much did it cost to build? What is its value now?  
 V. What is the house made of (brick, wood, sago, metal sheeting, concrete etc). Does it have floors? (Condition: (0=)Poor; 1=Fair to Good; 2=Very good)\*  
 W. Does your house have a toilet? If not, how far is nearest one?(0=Public or River; 1=have/ own)  
 X. Does your house have a Bath area? If not, how far is nearest one? (0=Public or River; 1=Own)  
 Y. Does your house have electricity? (0=No; 1=Yes)  
 Z. Does your house have a kitchen? (0=No; 1=Yes)  
 AA. Do you share any utilities/facilities with other HH? Share tasks? Trade Labor? (0=No; 1=Yes) (List)  
 AB. Where do you obtain water for drinking? For washing and bathing? Other?(1=piped; 2=truck; 3=vendor; 4=River or Well)  
 AC. Is it ever difficult to obtain water for any of these uses? How much does it cost?  
 AD. How is trash disposed of? Do you have to pay? Is it ever difficult to dispose of waste? What do people do with broken glass, oil, batteries or things that might be somewhat dangerous? Disposal Available: (0=No/Use river; 1=Yes)  
 AE. Are there people who come through your neighborhood buying/looking for bottles, metal, paper and other materials?  
 AF. Do you own or rent any other land or houses? Where and what arrangements?  
 AG. Do you rent out any vehicles, kiosk, gerobak etc.?  
 AH. Who in the HH is responsible for cleaning, babysitting, boiling water, taking out trash, paying utility bills, laundry, cooking, repairing the house, repairing vehicles, maintaining yard/garden, shopping, etc.? How much time per day/week each? Any arrangements w/ friends, neighbors?  
 AI. Do the children of the household (ages 6-17) ever help with any of the above activities? Who taught them these things?  
 AJ. Do any of the children have paying jobs? (0=No child earners; 1= one child earner)  
 AK. Do/did any of the children go to school? (Y/N)  
 AL. Do you belong to any savings or credit groups? Explain. (0=No; 1=Yes)  
 AM. Do you engage in any church or social activities? Are there many of these in your neighborhood? (0=No; 1=Yes)  
 AN. Are there any government programs in your neighborhood? Do you participate in any of them? Do you share any HH tasks with neighbors (cleaning, obtaining water, childcare, shopping etc)?  
 AO. Are any of the following considered a problem in your neighborhood? By whom?: Waste disposal; flies/mosquitoes; rodents; smoke/bad smells; dirty or polluted drinking water; salty well water, dirty or polluted river; drainage system; flooding; animal wastes; noise; house fire hazard; lack of space for children to play; lack of trees or plants; unsafe streets; robbery/theft; bad people, medical facilities?  
 AP. Satisfaction: In general, how satisfied are you with your living situation as concerns: Housing; drinking water; toilet facilities; bathing facilities; proximity to schools, market, and employment; access to medical facilities, the economy? (0=Not; 1=Somewhat; 2=Very)  
 AQ. General questions about living in the neighborhood: Who are your neighbors? Who is in charge of making sure people have water, toilets, drainage, and so forth? Who is responsible for 'environmental' management? Who do neighborhood people make a complaint to if there is a problem? Do you ever see any problems?  
 AR. General questions about the economy and quality of life in Ambon: Is it easy to make a living in Ambon? Is it difficult or easy to buy things? Would you rather live somewhere else? Why?

**ADDITIONAL DB Questions:**

**Perceptions:** (0= not problem; 1= somewhat/sometimes problem; 2=definitely a problem)

Waste disposal; flies/mosquitoes; rodents; smoke/bad smells; dirty or polluted drinking water; salty well water, dirty or polluted river; drainage system; flooding; animal wastes; noise; house fire hazard; lack of space for children to play; lack of trees or plants; unsafe streets; robbery/theft; bad people, lack of doctor/medical facility; crowding.

(Elaborate on why these are problems/ not problems)

\* **V. House Condition:** The three categories were developed as follows:

0=Poor: Typically has dirt floors, walls of wood, metal sheeting or recycled materials, sago palm roofing. Almost never has interior dividing walls or doorways, ceilings, or interior bathroom or bath areas. Some are pole structures. Other wooden (usually rental) structures in very poor repair are also placed in this category.

1=Fair to Good: Usually a wood framed structure, with concrete slab floors (often unfinished); walls made from brick, concrete, wood, or a combination; Roof usually metal sheeting. Interior side of external walls sometimes finished. Sometimes has interior walls, doors, ceilings.

2=Very Good: Typically wood framed, concrete floors finished with tile or linoleum; walls of brick and/or concrete which are finished on the inside. Roof metal or ceramic tile. Usually has interior dividing walls, drop ceilings. Bathroom and Bath often internal to house. Usually water source (piped or own well) nearby.

### COMPANION CHECKLIST FOR GUIDED INTERVIEW

What are the good and bad things about living in this neighborhood?

Has it changed since you moved here? how?

What are problems you face?

Is it easy to make a living here?

Are there problems in your neighborhood with land? Water? Air? For you? Others?

Who or what is causing them / Why do they occur?

Who is responsible for taking care of the problems?

What resources/knowledge do you need to control/avoid/prevent?

Are there known hazards (toxics, pathogens, earthquake, slides, flood,tsunami,hurricane, other)

How often do [hazards] occur?  
What do you do about it?  
What do your neighbor(s) do?  
What does the government do?

### HOUSEHOLD LABOR AND ENVIRONMENTAL MANAGEMENT

How many hours per day of housework, including cooking, cleaning, childcare, etc

Who takes care of kids?

Who responsible for waste disposal? recycling?

Who collects water? Who is responsible for construction and maintenance of all parts of the system?

Who cleans bathroom, kitchen?

Who fixes things when they break?

Any of these tasks/responsibilities shared cooperatively amongst neighbors? What kinds of arrangements?

Do the kids help?

### INCOME

Amount earned per month (self-employment, wages, salary, allowances, trade)

Are you receiving other income from rent: land, house, private bus, car, stall or shop, other

Profits from shop, market stall or restaurant, selling goods or food, recyclables, other

Gifts on a regular basis from children father/mother, other relatives, other support

Do you have a garden?

### POSSESSIONS:

Own any of the following? bus, car, motorcycle, becak, bicycle, television, video, refrigerator, radio, tape player, camera, wall clock, sewing machine, electric fan, washing machine, oven, dishwasher, lawn mower, houses,business, land, livestock?.

### SAVINGS

Are you able to save? (little, medium, a lot)

Do you plan to go on the Haj?

**OTHER HOUSEHOLD MEMBERS**

*How many people work, what is their contribution to HH income*

**EXPENDITURES**

*How much do you pay each month for house rent, mortgage, other payments water charges, SWM charges, electricity charges*

*Fuel costs (propane, kerosene, etc)*

*Are there taxes?*

*Food and Clothing for self, spouse, children , parents, others (where do you usually shop? How long to get there?)*

*Transport for self, spouse, children, others (Hire/ purchase)*

*Childrens education (fees, books, writing materials, etc)*

*Other expenses (pocket money, remittances to parents, other relatives, etc)*

**NETWORKS & ORGANIZATIONS**

*Do you belong to any groups, organizations, arisan? Do other people in HH?*

*Are there women's groups?*

*Do you help neighbors or friends with housework? Babysitting? Shopping? Gardening?*

*Loans? Other things?*

*Do they help you?*

*Do you share WC, electricity, Well, Mandi, kitchen, TV, refrigerator with anyone? Who?*

*Why do people cooperate? Not cooperate?*

*What kinds of people are there living here and how do they get along?*

*Are there any NH programs for housing, water, WC, roads, Drains etc?*

*Have there been any government programs ?*

*Who participates?*

**APPENDIX B.**  
**GENERAL INTERVIEW GUIDE: KEY INFORMANTS**

**A. GENERAL**

1. Occupation, age, ethnicity, religion, income, educational, and economic background.
2. What are good and bad things about living in Ambon
3. How long have you lived here? Do you have family here?
4. How do conditions in your neighborhood/ place of work compare with overall conditions in Ambon?

**B. PHYSICAL/ ENVIRONMENTAL**

5. What physical changes have you seen happen? What do you think about them?
6. What was the city like in the 1960s, 1970s, 1980s and 1990s?
7. How has environment changed? Are there more/less trees, gardens, open space? rivers, beaches, streets, houses the same, etc?
8. What government programs /projects have happened here? Housing, drains, wells, water, electricity, roads, and so forth. Any in progress? Have you ever participated in any?
9. Any LSM projects past or present?
10. Which programs have worked best? Which have not worked? Do local people get involved in programs? Who?
11. What moves people to take action to provide for their own needs? Why do people share? What factors restrict them from providing for their own needs? What factors help them to do more?
12. How many people live here? How many people per household?
13. How do people get information about the neighborhood and management programs?
14. How do people obtain environmental knowledge?
15. Does your occupation relate to any of these programs?
16. What infrastructure/services are there? How many people have electricity, piped water, phone?
17. Where do people get water? Any problems (quantity or quality)? What is cost?
18. What is condition of river? Any problems? How does water become polluted?
19. How is waste water disposed of? What is condition of storm drains and 'septics'? Who maintains and builds them?
20. Is there flooding? How often?
21. How do people dispose of waste? Do they have to pay?

22. What are the biggest health problems in the neighborhood? Where do people go if sick?
23. What is the nutritional status of people here? What foods do they eat?
24. How is the air quality?
25. Is this a noisy neighborhood? Why?
26. Is it safe for children? Are there hazardous conditions anywhere?
27. Are there any problems with land use? For example housing construction, access, ownership? commercial uses?
28. Are problems now better or worse than before? (1960s, 1970s, 1980s, 1990s)
29. How important are environmental problems overall compared to other problems?

C. ECONOMIC AND SOCIAL CONDITIONS

30. (NH) What kinds of economic activities take place here? Types of work? Is it easy to make a living here? Are you able to save? How much?
31. (NH) What kinds of people live or work here? Income level? Ethnicity?, Religion? Education? Occupations? How do they interact?
32. Do people from outside the desa/kelurahan work here? Immigrants?
33. What is happening with the economy and what is the local response?
34. Out-migration and in-migration rates? Why do people come/leave?
35. Current population? Are there many children?
36. Who are people in community who know about the history of the area?
37. How are the schools here?
38. How important are problems such as education and work compared to other problems like lack of water/electricity/ waste management?
39. Are there organized savings groups or active community organizations? Political parties? Religious groups? Women's groups?
40. Do you belong to any arisan or other groups? Why do people join or not join these groups? What about Government projects/programs?
41. Do people cooperate on their own in neighborhoods to fix problems?
42. What are the reasons these efforts succeed or fail?
43. What improvements would you like to see happen where you live?
44. Who is responsible for making improvements to the neighborhood?  
Ambon City?



|    | X        | Y        | Z          | AA           | AB   | AC     | AD      | AE     | AF   | AG     | AH          | AI    | AJ           | AK          | AL       | AM    | AN        | AO     | AP       | AQ       | AR       | AS       | AT       | AU       |
|----|----------|----------|------------|--------------|------|--------|---------|--------|------|--------|-------------|-------|--------------|-------------|----------|-------|-----------|--------|----------|----------|----------|----------|----------|----------|
|    | Com/Rect | # Makera | # Charitea | #Hanz/Contri | #Bsn | Msh/Dw | Fan/Car | Toilet | Bath | Kzaman | Electricity | Progn | Shrak/Utiliz | Wear/Source | Any Iron | Trash | Compartic | Asahan | Emas/Min | Emas/Min | Emas/Min | Emas/Min | Emas/Min | Emas/Min |
| 1  |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 2  |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 3  |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 4  |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 5  |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 6  |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 7  |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 8  |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 9  |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 10 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 11 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 12 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 13 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 14 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 15 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 16 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 17 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 18 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 19 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 20 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 21 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 22 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 23 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 24 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 25 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 26 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 27 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 28 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 29 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 30 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 31 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 32 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 33 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 34 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 35 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 36 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 37 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 38 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 39 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 40 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 41 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 42 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 43 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 44 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 45 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 46 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 47 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 48 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 49 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 50 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 51 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 52 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 53 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 54 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 55 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 56 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 57 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 58 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 59 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 60 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 61 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 62 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 63 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 64 | Rect     | 18       | 42         | 50           | 11   | 36     | 1.70    | 34     | 37   | 12     | 4           | 51    | 44           | 3           | 43       | 16    | 29        | 19     | 24       | 45       | 41       | 37       |          |          |
| 65 | Chn      | 42       |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 66 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 67 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 68 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 69 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 70 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 71 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 72 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 73 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 74 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 75 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 76 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 77 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 78 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 79 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 80 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 81 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 82 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 83 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 84 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |
| 85 |          |          |            |              |      |        |         |        |      |        |             |       |              |             |          |       |           |        |          |          |          |          |          |          |

Appendix C. Cross-Tabulations, Batu Merah 1997-1998



| Number | NH | Age                  | Rid/Blood  | Ethnicity  | Marital   | Religion                  | Education             | # HH Month            | # Children            | Yrs. In NH | Transport             | Occupation  | Income Category   | HH Income (000.00)               | Income/#H H Members                | # Earners                   | # Child Earners                       | HH Assets (Mil. \$)          | HH Expenses (000.00)            |  |
|--------|----|----------------------|--|--|---|---------------------------|-----------------------|-----------------------|-----------------------|------------|-----------------------|---|---|----------------------------------|------------------------------------|-----------------------------|---------------------------------------|------------------------------|---------------------------------|--|
| WH 1   | WH | 16                   | 1  | 4  | 1   | 1                         | 3                     | 10                    | 5                     | 2          | 2                     | LL/Vendor   | 4   | 875                              | 87.5                               | 2                           | 1                                     | 20                           | 175                             |  |
| WH 2   | WH | 20                   | 1  | 1  | 1   | 1                         | 2                     | 13                    | 9                     | 10         | 2                     | IRT/Trader I  | 5   | 2000                             | 153.85                             | 1                           | 0                                     | 60                           | 600                             |  |
| WH 3   | WH | 45                   | 4  | 4  | 4   | 1                         | 1                     | 8                     | 5                     | 30         | 2                     | Vendor  | 2   | 175                              | 28.17                              | 1                           | 0                                     | 10                           | 175                             |  |
| WH 4   | WH | 45                   | 4  | 4  | 1   | 1                         | 2                     | 8                     | 3                     | 36         | 2                     | IRT/Trader  | 5   | 2400                             | 300.00                             | 1                           | 0                                     | 200                          | 600                             |  |
| WH 5   | WH | 70                   | 1  | 1  | 1   | 2                         | 1                     | 9                     | 4                     | 62         | 3                     | IRT/CS  | 4   | 750                              | 83.33                              | 3                           | 0                                     | 30                           | 450                             |  |
| WH 6   | WH | 65                   | 1  | 4  | 1   | 2                         | 3                     | 9                     | 1                     | 17         | 2                     | IRT/Garana  | 4   | 1000                             | 111.11                             | 5                           | 0                                     | 300                          | 600                             |  |
| WH 7   | WH | 38                   | 1  | 1  | 1   | 1                         | 1                     | 7                     | 5                     | 16         | 1                     | IRT/Trader  | 3   | 500                              | 71.43                              | 1                           | 0                                     | 30                           | 250                             |  |
| WH 8   | WH | 60                   | 4  | 4  | 4   | 1                         | 0                     | 5                     | 0                     | 60         | 1                     | Vendor  | 2   | 150                              | 30.00                              | 1                           | 0                                     | 5                            | 100                             |  |
| WH 9   | WH | 46                   | 1  | 1  | 1   | 2                         | 1                     | 8                     | 3                     | 25         | 2                     | IRT/Teacher I   | 3   | 450                              | 58.25                              | 3                           | 0                                     | 25                           | 300                             |  |
| WH 10  | WH | 60                   | 4  | 4  | 1   | 1                         | 1                     | 12                    | 4                     | 7          | 2                     | Vendor/Trader   | 4   | 600                              | 50.00                              | 3                           | 0                                     | 100                          | 250                             |  |
| WH 11  | WH | 45                   | 1  | 8  | 1   | 1                         | 4                     | 6                     | 4                     | 20         | 2                     | Teacher/Ram Cloth   | 3   | 400                              | 66.67                              | 2                           | 0                                     | 50                           | 380                             |  |
| WH 12  | WH | 38                   | 4  | 4  | 1   | 1                         | 2                     | 6                     | 4                     | 22         | 2                     | Vendor/Trader   | 3   | 275                              | 45.83                              | 2                           | 0                                     | 15                           | 185                             |  |
| WH 13  | WH | 44                   | 1  | 1  | 1   | 1                         | 2                     | 6                     | 1                     | 24         | 2                     | Vendor/Trader/Talko   | 4   | 725                              | 120.83                             | 3                           | 0                                     | 150                          | 450                             |  |
| WH 14  | WH | 50                   | 4  | 4  | 1   | 1                         | 0                     | 8                     | 4                     | 2          | 3                     | IRT/Garana  | 4   | 1000                             | 125.00                             | 4                           | 0                                     | 50                           | 700                             |  |
| WH 15  | WH | 50                   | 2  | 2  | 1   | 2                         | 0                     | 4                     | 2                     | 30         | 1                     | IRT/Fisher  | 3   | 200                              | 50.00                              | 1                           | 0                                     | 5                            | 150                             |  |
| WH 16  | WH | 38                   | 2  | 2  | 1   | 1                         | 4                     | 9                     | 6                     | 17         | 2                     | Teacher/CS  | 4   | 650                              | 72.22                              | 3                           | 0                                     | 5                            | 400                             |  |
| WH 17  | WH | 60                   | 2  | 1  | 4   | 2                         | 0                     | 7                     | 2                     | 26         | 2                     | Teacher/Vendor  | 3   | 350                              | 60.00                              | 2                           | 0                                     | 15                           | 175                             |  |
| WH 18  | WH | 40                   | 1  | 1  | 1   | 1                         | 4                     | 8                     | 3                     | 25         | 1                     | Vendor/abhor  | 3   | 250                              | 41.67                              | 2                           | 0                                     | 10                           | 225                             |  |
| WH 19  | WH | 55                   | 1  | 1  | 1   | 1                         | 4                     | 10                    | 1                     | 30         | 2                     | Vendor/LL/abhor   | 3   | 400                              | 40.00                              | 5                           | 0                                     | 15                           | 350                             |  |
| WH 20  | WH | 49                   | 2  | 1  | 1   | 1                         | 3                     | 6                     | 4                     | 49         | 2                     | Vendor/Fisher   | 3   | 240                              | 40.00                              | 2                           | 0                                     | 15                           | 175                             |  |
| WH 21  | WH | 42                   | 1  | 4  | 1   | 1                         | 1                     | 7                     | 5                     | 10         | 2                     | Vendor/Electrician  | 3   | 300                              | 42.86                              | 2                           | 0                                     | 50                           | 215                             |  |
| WH 22  | WH | 45                   | 3  | 1  | 1   | 1                         | 2                     | 10                    | 7                     | 15         | 1                     | Vendor/abhor  | 3   | 300                              | 30.00                              | 1                           | 0                                     | 2                            | 250                             |  |
| WH 23  | WH | 40                   | 1  | 1  | 1   | 1                         | 0                     | 8                     | 6                     | 25         | 2                     | Vendor/Fisher   | 3   | 300                              | 37.50                              | 2                           | 2                                     | 5                            | 275                             |  |
| WH 24  | WH | 61                   | 3  | 3  | 1   | 1                         | 2                     | 8                     | 2                     | 35         | 2                     | Vendor/Fisher   | 4   | 700                              | 116.67                             | 3                           | 0                                     | 15                           | 400                             |  |
| WH 25  | WH | 42                   | 1  | 1  | 1   | 1                         | 3                     | 6                     | 2                     | 42         | 2                     | Vendor/Fisher   | 3   | 300                              | 50.00                              | 2                           | 0                                     | 50                           | 250                             |  |
| WH 26  | WH | 63                   | 2  | 2  | 4   | 2                         | 0                     | 3                     | 0                     | 44         | 1                     | Vendor/LL/abhor   | 3   | 200                              | 66.67                              | 1                           | 0                                     | 40                           | 175                             |  |
| WH 27  | WH | 38                   | 1  | 1  | 1   | 1                         | 5                     | 11                    | 5                     | 36         | 2                     | CS/Fisher   | 4   | 800                              | 54.55                              | 4                           | 0                                     | 20                           | 450                             |  |
| WH 28  | WH | 56                   | 1  | 4  | 1   | 1                         | 1                     | 8                     | 4                     | 13         | 3                     | Shnn Owner  | 5   | 3000                             | 375.00                             | 2                           | 0                                     | 500                          | 400                             |  |
| WH 29  | WH | 46                   | 2  | 1  | 1   | 1                         | 4                     | 10                    | 4                     | 40         | 1                     | Vendor/CS   | 4   | 900                              | 90.00                              | 5                           | 1                                     | 40                           | 600                             |  |
| WH 30  | WH | 53                   | 1  | 1  | 1   | 1                         | 0                     | 8                     | 1                     | 1          | 2                     | Labor/Vendor/CS   | 4   | 800                              | 100.00                             | 3                           | 0                                     | 10                           | 700                             |  |
| WH 31  | WH | 37                   | 1  | 1  | 1   | 1                         | 1                     | 7                     | 4                     | 37         | 2                     | Vendor/Fisher   | 3   | 440                              | 62.86                              | 2                           | 1                                     | 70                           | 300                             |  |
| WH 32  | WH | 40                   | 2  | 1  | 2   | 2                         | 2                     | 2                     | 1                     | 30         | 2                     | Vendor  | 1   | 90                               | 45.00                              | 1                           | 0                                     | 0                            | 90                              |  |
| WH 33  | WH | 40                   | 1  | 1  | 1   | 1                         | 1                     | 8                     | 5                     | 40         | 2                     | Vendor I /Sailor  | 3   | 500                              | 62.50                              | 3                           | 0                                     | 10                           | 350                             |  |
| WH 34  | WH | 30                   | 4  | 4  | 1   | 1                         | 1                     | 7                     | 4                     | 22         | 2                     | CS/Fisher   | 3   | 400                              | 57.14                              | 2                           | 0                                     | 5                            | 350                             |  |
| WH 35  | WH | 23                   | 1  | 2  | 2   | 2                         | 5                     | 8                     | 3                     | 23         | 2                     | CS/Vendor   | 3   | 450                              | 58.25                              | 2                           | 0                                     | 3                            | 400                             |  |
| WH 36  | WH | 41                   | 1  | 4  | 1   | 1                         | 3                     | 3                     | 1                     | 12         | 1                     | Trader  | 3   | 375                              | 125.00                             | 1                           | 0                                     | 10                           | 300                             |  |
| WH 37  | WH | 33                   | 2  | 2  | 2   | 1                         | 3                     | 6                     | 0                     | 8          | 2                     | Teacher/Vendor  | 3   | 500                              | 83.33                              | 2                           | 0                                     | 12                           | 350                             |  |
| WH 38  | WH | 30                   | 1  | 1  | 1   | 2                         | 5                     | 5                     | 1                     | 30         | 2                     | CS/Fisher   | 3   | 400                              | 80.00                              | 2                           | 0                                     | 5                            | 350                             |  |
| WH 39  | WH | 45                   | 4  | 4  | 1   | 2                         | 2                     | 7                     | 5                     | 45         | 2                     | Vendor  | 3   | 250                              | 35.71                              | 1                           | 1                                     | 2                            | 250                             |  |
| WH 40  | WH | 37                   | 1  | 1  | 1   | 1                         | 3                     | 6                     | 4                     | 6          | 2                     | Trader/Vendor   | 3   | 400                              | 66.67                              | 2                           | 0                                     | 5                            | 350                             |  |
|        |    | Mean Age<br>44.68    | Amb 21<br>Maluku 8<br>Jawa 2<br>Sulaw 9<br>Irian 0 | Amb 20<br>Maluku 5<br>Jawa 1<br>Sulaw 13<br>Irian 0<br>Chinese 1 | Married 33<br>Single 3<br>Divorced 0<br>Widow 4 | Muslim 30<br>Christian 10 | Mean 2.05<br>Median 2 | Mean 7.28<br>Median 7 | Mean 3.35<br>Median 4 | Mean 25.6  | Mean 1.88<br>Median 2 | Vendor 25<br>Trader 8<br>Civil Servant 12<br>Landlord 7<br>Other Svc 5<br>Labor 5<br>Shnn Owner 1<br>Warrior 2<br>Fishino 8<br>Sailor 1 | Poor < 50K<br>Near < 115K<br>Med < 580K<br>Med-HI < 104<br>HI > 1042K | Mean<br>814.875<br>Median<br>420 | Mean<br>81.564<br>Median<br>62.879 | Mean<br>2.25<br>Median<br>2 | Jan C Erme<br>35<br>At least one<br>5 | Mean<br>49.1<br>Median<br>15 | Mean<br>337.38<br>Median<br>325 |  |
|        |    | Age X Edu<br>-0.4223 | Orin X Edu<br>-0.3190                              |  |   |                           |                       |                       |                       |            |                       |   |   |                                  |                                    |                             |                                       |                              |                                 |  |

Appendix C. Cross Tabulations, Waihaong 1998-1998

| Expenses as % Income | House Sq. M/Person | House Condition                                  | Own/Rent          | # Malaria   | # Diarrhea  | Resp/Cough    | # Skin         | Meals/Day    | Fish/Day    | Toilet           | Bath           | Kitchen          | Electricity   | Phone           | Share Ubiy    | Water Source               | Any from River/Well      | Trash Disposal | Community Activities        | Arisan                       |  |           |  |
|----------------------|--------------------|--|-------------------|---|-------------|---------------|----------------|--------------|-------------|------------------|----------------|------------------|---------------|-----------------|---------------|----------------------------|--------------------------|----------------|-----------------------------|------------------------------|--|-----------|--|
| 0.2                  | 5.5                | 1  | 1                 | 1   | 0           | 2             | 1              | 2            | 2           | 0                | 0              | 1                | 1             | 0               | 0             | 1                          | 1                        | 1              | 0                           | 0                            |  |           |  |
| 0.30                 | 3.8                | 1  | 2                 | 0   | 0           | 1             | 4              | 3            | 2           | 0                | 0              | 1                | 1             | 0               | 1             | 1                          | 1                        | 1              | 0                           | 0                            |  |           |  |
| 1.00                 | 8.8                | 1  | 1                 | 0   | 0           | 1             | 0              | 2            | 1           | 1                | 1              | 1                | 1             | 1               | 1             | 1                          | 1                        | 1              | 0                           | 0                            |  |           |  |
| 0.25                 | 3.75               | 1  | 2                 | 0   | 3           | 2             | 0              | 3            | 2           | 0                | 0              | 0                | 0             | 1               | 1             | 1                          | 1                        | 1              | 0                           | 0                            |  |           |  |
| 0.80                 | 6                  | 1  | 1                 | 0   | 0           | 1             | 0              | 3            | 2           | 1                | 1              | 1                | 1             | 0               | 0             | 1                          | 0                        | 1              | 0                           | 1                            |  |           |  |
| 0.80                 | 14                 | 2  | 1                 | 0   | 0           | 1             | 0              | 3            | 2           | 1                | 0              | 1                | 1             | 1               | 0             | 1                          | 0                        | 1              | 0                           | 0                            |  |           |  |
| 0.50                 | 14                 | 1  | 1                 | 1   | 2           | 2             | 0              | 3            | 2           | 0                | 1              | 1                | 1             | 0               | 1             | 1                          | 1                        | 1              | 1                           | 1                            |  |           |  |
| 0.67                 | 5.5                | 1  | 1                 | 0   | 0           | 1             | 0              | 2            | 1           | 0                | 0              | 1                | 1             | 0               | 0             | 1                          | 1                        | 1              | 0                           | 0                            |  |           |  |
| 0.67                 | 5.6                | 0  | 1                 | 1   | 2           | 1             | 1              | 2            | 1           | 0                | 1              | 1                | 1             | 0               | 0             | 4                          | 1                        | 1              | 0                           | 1                            |  |           |  |
| 0.42                 | 7                  | 1  | 1                 | 0   | 0           | 1             | 0              | 2            | 1           | 0                | 1              | 1                | 1             | 1               | 0             | 3                          | 1                        | 1              | 1                           | 1                            |  |           |  |
| 0.95                 | 5.4                | 1  | 1                 | 0   | 0           | 1             | 0              | 2            | 2           | 0                | 0              | 1                | 1             | 1               | 0             | 4                          | 0                        | 1              | 1                           | 1                            |  |           |  |
| 0.67                 | 7                  | 1  | 1                 | 0   | 1           | 0             | 1              | 3            | 1           | 0                | 1              | 1                | 1             | 0               | 1             | 4                          | 1                        | 1              | 0                           | 1                            |  |           |  |
| 0.62                 | 8                  | 2  | 1                 | 0   | 0           | 1             | 0              | 2            | 2           | 1                | 1              | 1                | 1             | 1               | 1             | 1                          | 1                        | 1              | 0                           | 0                            |  |           |  |
| 0.70                 | 7.5                | 0  | 2                 | 0   | 0           | 1             | 0              | 2            | 2           | 1                | 0              | 1                | 1             | 1               | 1             | 1                          | 0                        | 1              | 0                           | 0                            |  |           |  |
| 0.75                 | 12                 | 0  | 1                 | 2   | 0           | 1             | 0              | 2            | 2           | 0                | 0              | 1                | 1             | 0               | 1             | 1                          | 1                        | 1              | 0                           | 0                            |  |           |  |
| 0.62                 | 6.7                | 1  | 1                 | 0   | 0           | 1             | 0              | 3            | 2           | 1                | 1              | 1                | 1             | 1               | 0             | 1                          | 1                        | 1              | 1                           | 1                            |  |           |  |
| 0.50                 | 5                  | 1  | 1                 | 0   | 0           | 1             | 1              | 3            | 2           | 1                | 1              | 1                | 1             | 1               | 0             | 1                          | 0                        | 1              | 1                           | 1                            |  |           |  |
| 0.90                 | 10                 | 0  | 1                 | 0   | 0           | 1             | 0              | 3            | 2           | 0                | 0              | 1                | 1             | 0               | 0             | 1                          | 1                        | 1              | 1                           | 1                            |  |           |  |
| 0.88                 | 5.8                | 1  | 1                 | 0   | 0           | 0             | 0              | 2            | 2           | 0                | 0              | 1                | 1             | 0               | 1             | 1                          | 1                        | 1              | 1                           | 1                            |  |           |  |
| 0.73                 | 3.3                | 1  | 1                 | 0   | 0           | 0             | 0              | 3            | 2           | 0                | 0              | 1                | 1             | 0               | 0             | 1                          | 1                        | 1              | 1                           | 1                            |  |           |  |
| 0.75                 | 3.4                | 1  | 0                 | 0   | 0           | 1             | 0              | 3            | 2           | 1                | 1              | 1                | 1             | 0               | 0             | 4                          | 0                        | 1              | 1                           | 0                            |  |           |  |
| 0.83                 | 3                  | 0  | 0                 | 0   | 0           | 3             | 4              | 3            | 2           | 0                | 0              | 1                | 0             | 0               | 1             | 1                          | 1                        | 1              | 0                           | 0                            |  |           |  |
| 0.92                 | 5                  | 1  | 0                 | 0   | 0           | 0             | 0              | 2            | 1           | 0                | 0              | 0                | 1             | 0               | 0             | 1                          | 1                        | 1              | 1                           | 1                            |  |           |  |
| 0.57                 | 7                  | 1  | 1                 | 0   | 0           | 4             | 0              | 3            | 2           | 1                | 1              | 1                | 1             | 0               | 1             | 1                          | 0                        | 1              | 1                           | 1                            |  |           |  |
| 0.83                 | 10                 | 1  | 1                 | 1   | 0           | 1             | 0              | 3            | 2           | 1                | 1              | 1                | 1             | 0               | 1             | 1                          | 0                        | 1              | 0                           | 1                            |  |           |  |
| 0.88                 | 7                  | 1  | 1                 | 0   | 0           | 1             | 0              | 2            | 2           | 0                | 0              | 1                | 1             | 0               | 1             | 1                          | 1                        | 1              | 0                           | 0                            |  |           |  |
| 0.75                 | 12                 | 2  | 0                 | 0   | 0           | 2             | 0              | 3            | 2           | 1                | 1              | 1                | 1             | 0               | 1             | 1                          | 1                        | 1              | 1                           | 1                            |  |           |  |
| 0.13                 | 10                 | 2  | 1                 | 0   | 0           | 1             | 0              | 3            | 2           | 1                | 1              | 1                | 1             | 0               | 1             | 0                          | 1                        | 1              | 0                           | 0                            |  |           |  |
| 0.67                 | 4.8                | 1  | 0                 | 0   | 0           | 0             | 0              | 3            | 2           | 1                | 1              | 1                | 1             | 0               | 1             | 1                          | 1                        | 1              | 0                           | 1                            |  |           |  |
| 0.88                 | 7.5                | 1  | 1                 | 0   | 0           | 1             | 1              | 3            | 2           | 1                | 0              | 1                | 1             | 1               | 0             | 1                          | 1                        | 0              | 0                           | 1                            |  |           |  |
| 0.88                 | 12                 | 1  | 0                 | 0   | 0           | 1             | 1              | 3            | 2           | 1                | 1              | 1                | 1             | 1               | 0             | 1                          | 1                        | 1              | 1                           | 1                            |  |           |  |
| 1.00                 | 6.5                | 0  | 0                 | 0   | 0           | 1             | 0              | 2            | 1           | 0                | 0              | 1                | 1             | 0               | 1             | 1                          | 1                        | 1              | 0                           | 0                            |  |           |  |
| 0.70                 | 3                  | 1  | 0                 | 0   | 0           | 1             | 3              | 3            | 2           | 1                | 1              | 1                | 1             | 0               | 0             | 1                          | 1                        | 1              | 1                           | 1                            |  |           |  |
| 0.88                 | 4                  | 1  | 1                 | 0   | 0           | 0             | 0              | 3            | 2           | 0                | 0              | 1                | 1             | 0               | 1             | 1                          | 1                        | 1              | 0                           | 1                            |  |           |  |
| 0.89                 | 5                  | 1  | 1                 | 1   | 0           | 1             | 1              | 3            | 2           | 1                | 1              | 1                | 1             | 0               | 0             | 1                          | 1                        | 1              | 0                           | 1                            |  |           |  |
| 0.80                 | 10                 | 1  | 0                 | 0   | 0           | 1             | 0              | 3            | 2           | 0                | 0              | 0                | 1             | 1               | 1             | 1                          | 1                        | 1              | 0                           | 0                            |  |           |  |
| 0.70                 | 4                  | 1  | 1                 | 0   | 0           | 0             | 0              | 3            | 2           | 1                | 1              | 1                | 1             | 0               | 0             | 1                          | 0                        | 1              | 0                           | 1                            |  |           |  |
| 0.88                 | 5                  | 1  | 1                 | 0   | 0           | 1             | 0              | 3            | 2           | 1                | 1              | 1                | 1             | 0               | 0             | 1                          | 1                        | 1              | 0                           | 0                            |  |           |  |
| 1.00                 | 5.2                | 0  | 0                 | 0   | 0           | 1             | 0              | 2            | 1           | 0                | 0              | 0                | 1             | 0               | 1             | 4                          | 1                        | 0              | 0                           | 0                            |  |           |  |
| 0.88                 | 7                  | 1  | 1                 | 1   | 1           | 0             | 1              | 3            | 2           | 1                | 1              | 1                | 1             | 0               | 1             | 1                          | 1                        | 1              | 0                           | 0                            |  |           |  |
| Mean<br>0.70         | Mean<br>6.90       | Mean<br>0.825                                    | Rent<br>10        | Non Malaria<br>33   | Non D<br>35 | Non Resn<br>7 | Non Skin<br>28 | Mean<br>2.85 | Mean<br>1.8 | Non Toilet<br>20 | Non Bath<br>18 | Non Kitchen<br>4 | Non Elec<br>1 | Non Phone<br>30 | Share U<br>22 | Piped<br>34                | Well Water<br>30<br>-75% | Have<br>38     | Participation<br>15         | Arisan<br>22                 |  |           |  |
| Median<br>0.71       | Median<br>6.25     | 0 = Poor<br>7<br>1 = Fair<br>29<br>2 = Good<br>4 | Own/Inherit<br>30 | <table border="1"> <tr><td>Hunertansi</td><td>0</td></tr> <tr><td>Heart Dise</td><td>5</td></tr> <tr><td>Parasites</td><td>2</td></tr> <tr><td>Intoxication</td><td>16</td></tr> <tr><td>Accidents</td><td>1</td></tr> </table> |             |               |                | Hunertansi   | 0           | Heart Dise       | 5              | Parasites        | 2             | Intoxication    | 16            | Accidents                  | 1                        | 2x dav<br>32   | 1x dav<br>8                 | Vendor<br>1                  |  | Well<br>5 |  |
| Hunertansi           | 0                  |  |                   |   |             |               |                |              |             |                  |                |                  |               |                 |               |                            |                          |                |                             |                              |  |           |  |
| Heart Dise           | 5                  |  |                   |   |             |               |                |              |             |                  |                |                  |               |                 |               |                            |                          |                |                             |                              |  |           |  |
| Parasites            | 2                  |  |                   |   |             |               |                |              |             |                  |                |                  |               |                 |               |                            |                          |                |                             |                              |  |           |  |
| Intoxication         | 16                 |  |                   |   |             |               |                |              |             |                  |                |                  |               |                 |               |                            |                          |                |                             |                              |  |           |  |
| Accidents            | 1                  |  |                   |   |             |               |                |              |             |                  |                |                  |               |                 |               |                            |                          |                |                             |                              |  |           |  |
|                      |                    |  |                   |   |             |               |                |              |             |                  |                |                  |               |                 |               | Inc. x Share<br>0.1983     |                          |                | Inc. x Partic<br>0.0426     |                              |  |           |  |
|                      |                    |  |                   |   |             |               |                |              |             |                  |                |                  |               |                 |               | Inc. Cat x Share<br>0.1181 |                          |                | Inc. x Partic<br>-0.2409    |                              |  |           |  |
|                      |                    |  |                   |   |             |               |                |              |             |                  |                |                  |               |                 |               |                            |                          |                | Inc. x Partic<br>0.0006     | Inc. x Partic<br>-0.2377     |  |           |  |
|                      |                    |  |                   |   |             |               |                |              |             |                  |                |                  |               |                 |               |                            |                          |                | Inc. Cat x Partic<br>0.0738 | Inc. Cat x Partic<br>-0.0098 |  |           |  |

Appendix C. Cross Tabulations, Waihaong 1998-1998

| Perception: Waste | Perception: Flies/Mosq | Perception: Rodent | Perception: Smoke/Smell | Perception: Dirty Water | Perception: Salty Well | Perception: Drainage | Perception: Noise | Perception: Fire Hazard | Perception: Kids Play Space | Perception: Trees | Perception: Theft | Perception: Crowding | Satisfaction: Medical Facil | Satisfaction: Housing | Satisfaction: Water | Satisfaction: Toilet | Satisfaction: Mandi | Satisfaction: Market | Satisfaction: Transport | Satisfaction: Schools |
|-------------------|------------------------|--------------------|-------------------------|-------------------------|------------------------|----------------------|-------------------|-------------------------|-----------------------------|-------------------|-------------------|----------------------|-----------------------------|-----------------------|---------------------|----------------------|---------------------|----------------------|-------------------------|-----------------------|
| 0                 | 0                      | 0                  | 1                       | 0                       | 0                      | 0                    | 1                 | 2                       | 0                           | 0                 | 2                 | 2                    | 1                           | 1                     | 0                   | 1                    | 1                   | 2                    | 2                       | 1                     |
| 2                 | 0                      | 2                  | 0                       | 0                       | 2                      | 0                    | 0                 | 0                       | 0                           | 0                 | 1                 | 1                    | 2                           | 2                     | 1                   | 0                    | 0                   | 0                    | 1                       | 0                     |
| 0                 | 0                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 0                       | 0                           | 0                 | 0                 | 0                    | 2                           | 2                     | 2                   | 2                    | 2                   | 2                    | 2                       | 2                     |
| 0                 | 0                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 0                       | 0                           | 0                 | 0                 | 0                    | 2                           | 2                     | 2                   | 2                    | 2                   | 2                    | 2                       | 2                     |
| 0                 | 1                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 0                       | 0                           | 0                 | 0                 | 0                    | 2                           | 2                     | 2                   | 2                    | 2                   | 2                    | 2                       | 2                     |
| 2                 | 0                      | 1                  | 1                       | 0                       | 0                      | 0                    | 0                 | 0                       | 0                           | 0                 | 2                 | 2                    | 2                           | 2                     | 2                   | 2                    | 2                   | 2                    | 2                       | 2                     |
| 0                 | 0                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 0                       | 0                           | 0                 | 0                 | 0                    | 2                           | 2                     | 2                   | 2                    | 2                   | 2                    | 2                       | 2                     |
| 2                 | 0                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 0                       | 0                           | 0                 | 0                 | 0                    | 2                           | 2                     | 2                   | 2                    | 2                   | 2                    | 2                       | 2                     |
| 1                 | 1                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 0                       | 0                           | 0                 | 2                 | 2                    | 2                           | 2                     | 2                   | 2                    | 2                   | 2                    | 2                       | 2                     |
| 0                 | 1                      | 2                  | 0                       | 0                       | 0                      | 1                    | 0                 | 2                       | 0                           | 0                 | 0                 | 2                    | 2                           | 2                     | 2                   | 2                    | 2                   | 2                    | 2                       | 2                     |
| 2                 | 0                      | 0                  | 1                       | 1                       | 0                      | 1                    | 1                 | 0                       | 0                           | 0                 | 1                 | 2                    | 2                           | 1                     | 1                   | 1                    | 1                   | 2                    | 2                       | 2                     |
| 0                 | 0                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 2                       | 0                           | 0                 | 0                 | 1                    | 2                           | 2                     | 2                   | 0                    | 2                   | 2                    | 2                       | 2                     |
| 1                 | 0                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 1                       | 0                           | 0                 | 0                 | 1                    | 2                           | 2                     | 2                   | 2                    | 2                   | 2                    | 2                       | 2                     |
| 1                 | 0                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 0                       | 0                           | 0                 | 0                 | 1                    | 1                           | 1                     | 1                   | 1                    | 1                   | 1                    | 1                       | 1                     |
| 0                 | 0                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 2                       | 0                           | 0                 | 0                 | 1                    | 2                           | 1                     | 1                   | 1                    | 1                   | 2                    | 2                       | 2                     |
| 0                 | 0                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 1                       | 0                           | 0                 | 0                 | 1                    | 2                           | 1                     | 0                   | 0                    | 1                   | 1                    | 2                       | 2                     |
| 0                 | 0                      | 1                  | 0                       | 1                       | 0                      | 1                    | 0                 | 1                       | 0                           | 0                 | 0                 | 1                    | 1                           | 1                     | 1                   | 1                    | 1                   | 1                    | 1                       | 1                     |
| 0                 | 2                      | 2                  | 1                       | 0                       | 0                      | 1                    | 1                 | 0                       | 0                           | 0                 | 0                 | 2                    | 2                           | 1                     | 1                   | 1                    | 1                   | 2                    | 2                       | 2                     |
| 0                 | 0                      | 0                  | 0                       | 0                       | 0                      | 2                    | 0                 | 2                       | 0                           | 0                 | 0                 | 2                    | 2                           | 1                     | 1                   | 1                    | 1                   | 1                    | 2                       | 2                     |
| 1                 | 0                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 1                       | 1                           | 1                 | 1                 | 2                    | 2                           | 1                     | 1                   | 0                    | 0                   | 1                    | 2                       | 2                     |
| 0                 | 1                      | 1                  | 0                       | 0                       | 0                      | 0                    | 0                 | 2                       | 0                           | 0                 | 0                 | 2                    | 2                           | 1                     | 1                   | 1                    | 1                   | 2                    | 2                       | 2                     |
| 0                 | 1                      | 0                  | 1                       | 1                       | 0                      | 2                    | 0                 | 2                       | 0                           | 0                 | 0                 | 2                    | 2                           | 1                     | 1                   | 0                    | 1                   | 2                    | 2                       | 2                     |
| 0                 | 0                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 0                       | 0                           | 0                 | 0                 | 1                    | 2                           | 1                     | 1                   | 1                    | 1                   | 2                    | 2                       | 1                     |
| 0                 | 1                      | 0                  | 0                       | 0                       | 1                      | 0                    | 0                 | 2                       | 1                           | 0                 | 0                 | 1                    | 2                           | 1                     | 1                   | 1                    | 1                   | 1                    | 2                       | 2                     |
| 0                 | 1                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 2                       | 0                           | 0                 | 0                 | 2                    | 1                           | 0                     | 1                   | 1                    | 1                   | 1                    | 1                       | 1                     |
| 1                 | 0                      | 1                  | 0                       | 1                       | 0                      | 2                    | 0                 | 1                       | 1                           | 0                 | 0                 | 2                    | 1                           | 1                     | 2                   | 0                    | 1                   | 2                    | 2                       | 1                     |
| 2                 | 1                      | 1                  | 1                       | 0                       | 1                      | 1                    | 0                 | 1                       | 0                           | 1                 | 0                 | 1                    | 1                           | 1                     | 1                   | 1                    | 1                   | 1                    | 1                       | 2                     |
| 0                 | 0                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 0                       | 0                           | 0                 | 1                 | 2                    | 1                           | 2                     | 0                   | 0                    | 2                   | 1                    | 2                       | 2                     |
| 0                 | 0                      | 0                  | 0                       | 1                       | 0                      | 0                    | 1                 | 0                       | 0                           | 0                 | 0                 | 1                    | 1                           | 2                     | 1                   | 1                    | 1                   | 1                    | 2                       | 2                     |
| 0                 | 0                      | 0                  | 0                       | 0                       | 0                      | 1                    | 0                 | 0                       | 0                           | 0                 | 0                 | 1                    | 2                           | 0                     | 0                   | 0                    | 0                   | 2                    | 1                       | 2                     |
| 0                 | 0                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 1                       | 0                           | 0                 | 0                 | 1                    | 1                           | 1                     | 1                   | 1                    | 1                   | 1                    | 1                       | 1                     |
| 0                 | 0                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 0                       | 0                           | 0                 | 0                 | 1                    | 1                           | 1                     | 0                   | 0                    | 0                   | 2                    | 1                       | 2                     |
| 0                 | 0                      | 0                  | 0                       | 0                       | 0                      | 0                    | 0                 | 0                       | 0                           | 0                 | 0                 | 1                    | 1                           | 1                     | 1                   | 1                    | 1                   | 1                    | 1                       | 1                     |
| No Prbh           | No Prbh                | No Prbh            | No Prbh                 | No Prbh                 | No Prbh                | No Prbh              | No Prbh           | No Prbh                 | No Prbh                     | No Prbh           | No Prbh           | No Prbh              | Not Satisfied               | Not Satisfied         | Not Satisfied       | Not Satisfied        | Not Satisfied       | Not Satisfied        | Not Satisfied           | Not Satisfied         |
| 30                | 26                     | 25                 | 32                      | 31                      | 36                     | 27                   | 33                | 10                      | 37                          | 38                | 35                | 5                    | 1                           | 2                     | 3                   | 11                   | 5                   | 0                    | 0                       | 0                     |
| Somewhat          | Somewhat               | Somewhat           | Somewhat                | Somewhat                | Somewhat               | Somewhat             | Somewhat          | Somewhat                | Somewhat                    | Somewhat          | Somewhat          | Somewhat             | Somewhat                    | Somewhat              | Somewhat            | Somewhat             | Somewhat            | Somewhat             | Somewhat                | Somewhat              |
| 5                 | 11                     | 9                  | 9                       | 9                       | 3                      | 9                    | 5                 | 10                      | 3                           | 2                 | 2                 | 22                   | 8                           | 26                    | 21                  | 18                   | 23                  | 17                   | 12                      | 28                    |
| Serious           | Serious                | Serious            | Serious                 | Serious                 | Serious                | Serious              | Serious           | Serious                 | Serious                     | Serious           | Serious           | Serious              | Very                        | Very                  | Very                | Very                 | Very                | Very                 | Very                    | Very                  |
| 5                 | 3                      | 6                  | 0                       | 0                       | 1                      | 4                    | 2                 | 20                      | 0                           | 0                 | 2                 | 13                   | 31                          | 12                    | 18                  | 11                   | 12                  | 23                   | 28                      | 28                    |

| Edu x Perce | EDU X SAT |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 0.1718      | -0.1789     | 0.0211      | 0.1464      | 0.1402      | -0.0103     | -0.0458     | 0.1433      | 0.0298      | -0.2598     | 0.0681      | -0.0450     | -0.0618     | -0.2538   | -0.0769   | -0.0448   | -0.0867   | 0.0171    | -0.1718   | -0.1944   | 0.0576    |
| 0.2884      | -0.0439     | 0.0601      | -0.3287     | -0.2082     | -0.2390     | 0.2767      | -0.2488     | 0.1780      | 0.0242      | -0.1751     | -0.2273     | 0.0598      | 0.1305    | 0.2768    | 0.2547    | 0.1718    | 0.2938    | 0.2273    | 0.1758    | 0.1298    |
| 0.0481      | -0.0179     | -0.0185     | -0.0847     | 0.0415      | 0.2260      | -0.1806     | -0.0944     | -0.0138     | -0.1141     | -0.0939     | -0.3460     | 0.0957      | 0.0538    | 0.2862    | 0.1740    | 0.0957    | 0.1118    | 0.2034    | 0.0711    | 0.0720    |
| 0.0870      | 0.0240      | 0.0932      | -0.0476     | -0.0704     | 0.1890      | -0.0727     | 0.0652      | 0.0287      | -0.1178     | -0.0947     | 0.1108      | -0.1280     | 0.1467    | 0.1037    | 0.2496    | 0.1713    | 0.1378    | 0.2906    | -0.0069   | 0.0824    |

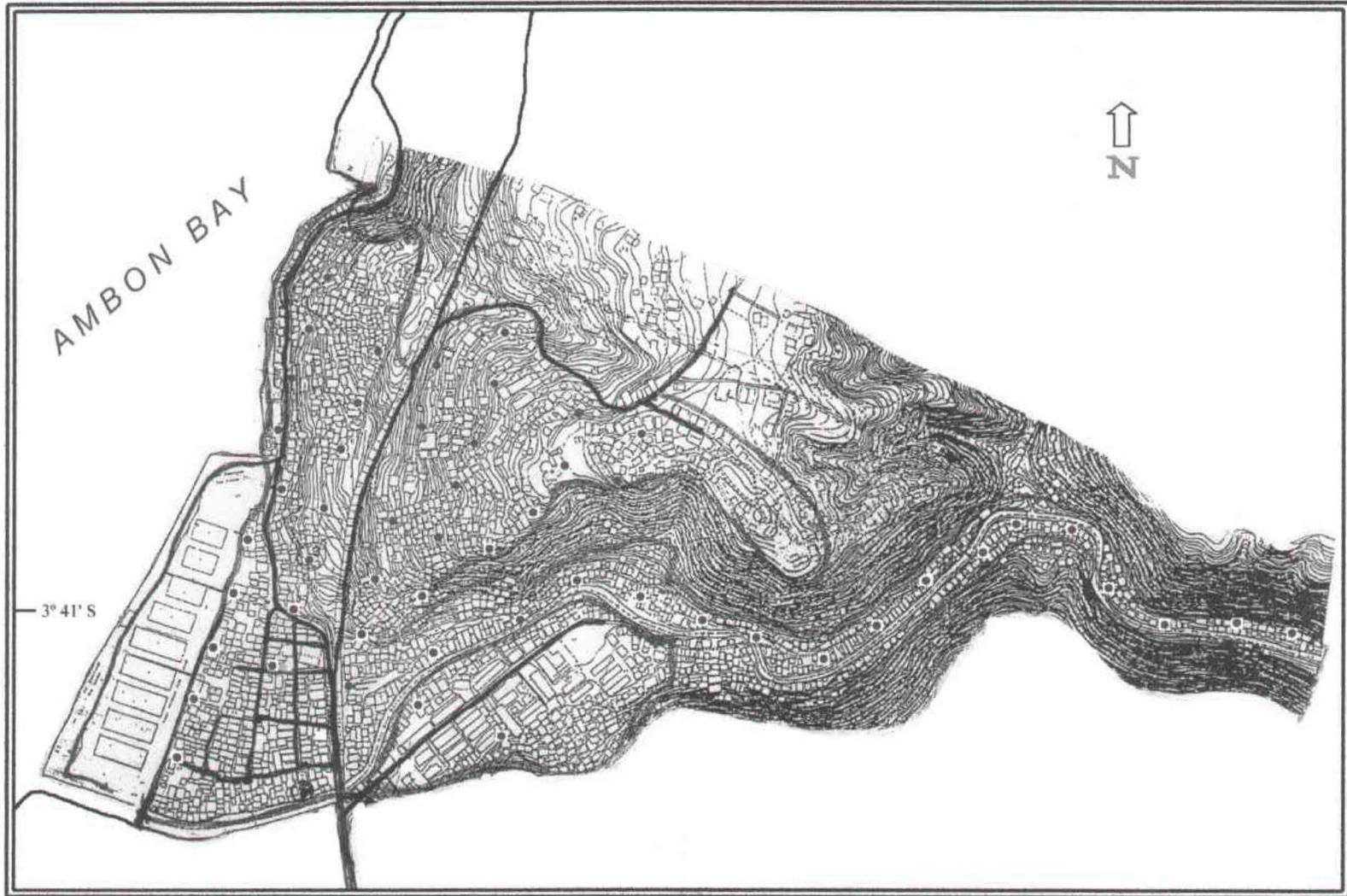
Appendix C. Cross Tabulations, Waihaong 1998-1998





Source: Bappeda Tk. I Maluku 1996.

#### Appendix D. Point Sample Procedure, Waihaong



Source: Bappeda Tk. I Maluku, 1996.

Appendix D. Point Sample Procedure, Batu Merah.

## GLOSSARY AND ABBREVIATIONS

|          |   |
|----------|---|
| Adat     | Customary or traditional law or system of social control  |
| Air      | Water.  |
| Amboina  | Dutch name for Ambon City c. 1600-1940.   |
| AMDAL    | Environmental Impact Analysis ( <i>Analisis Mengenai Dampak Lingkungan</i> ).   |
| Arisan   | Small, rotating credit or savings organization.   |
| Bapak    | Honorific formal form of word for <i>Father</i> ; for informal interchanges the more abbreviated <i>Pak</i> or <i>Pa'</i> are commonly used.  |
| Bakso    | Spicy meatball soup.  |
| Becak    | Pedicab, also known as tri-shaw or rickshaw.  |
| Bemo     | Small van used widely for public transportation which carries 14 passengers. In Ambon also known as 'Mobile', or 'Umum' (short for <i>kendaraan umum</i> , <i>public transport</i> ). |
| Bappeda  | Regional Planning Body ( <i>Badan Perencanaan Daerah</i> ).   |
| Bappedal | Environmental Impact Analysis Regulatory Agency ( <i>Badan Pengendalian Analisis Dampak Lingkungan</i> ).   |
| BK       | Bureau of Finance ( <i>Biro Keuangan</i> )  |
| BKLN     | Bureau for Population and Environment ( <i>Biro Kependudukan dan Lingkungan Hidup</i> ).  |
| BOD      | Biological Oxygen Demand.   |
| BPS      | Central Statistics Bureau ( <i>Biro Pusat Statistik</i> ).  |
| Dati I   | Level I of provincial government ( <i>Daerah Tingkat I</i> )  |
| Dati II  | Level II ( <i>local level</i> ) government under provincial office.   |
| Desa     | Rural Administrative Unit, roughly synonymous with village.   |

|               |  |
|---------------|--|
| DIP           | Departmental development budget ( <i>Daftar Isian Proyek</i> )   |
| DPU           | Department of Public Works ( <i>Departemen Pekerjaan Umum</i> ).   |
| Gado-gado     | Cooked vegetable salad with peanut sauce.  |
| Gandong       | (Ambonese) ‘Solidarity’, ‘working together’. Term appropriated by government in Pancasila drive as local ‘equivalent’ of Javanese ‘Gotong Royong’ concept.   |
| Gotong Royong | (Javanese) Concept of mutual aid and neighborliness. Institutionalized as Pancasila catchword, denoting spontaneous cooperation containing elements of voluntary reciprocity neighbors to fulfill local needs. |
| GDP           | Gross Domestic Product.  |
| GRDP          | Gross Regional Domestic Product.   |
| GNP           | Gross National Product   |
| Haj           | Islamic pilgrimage to Mecca.   |
| Haji          | A pilgrim who has visited Mecca or is preparing to do so.  |
| Ibu           | Mother, sometimes shortened to the informal <i>Bu</i> .  |
| Imam          | Islamic leader.  |
| Inpres        | Imperative for central government funding for specified development projects, usually at provincial or local level ( <i>Instruksi Presiden</i> ).  |
| IUIDP         | Integrated Urban Infrastructure Development Programme.   |
| Jabotabek     | Jakarta metropolitan region composed of Jakarta, Bogor, Tnagerang, Bekasi.   |
| Jalan         | Road or street.  |
| KADIN         | Chamber of Trade and Commerce  |
| Kampung       | Village or neighborhood. See also <i>Kelurahan</i> and <i>Desa</i> .   |

|             |  |
|-------------|--|
| Kanwil      | Offices of the provincial government ( <i>Kantor Wilayah</i> ).  |
| Kecamatan   | District   |
| Kelurahan   | Urban administrative unit, roughly synonymous with neighborhood.   |
| Kepala Desa | Lit: <i>Village head</i> ; elected village administrator.  |
| Ketua RW    | Head of neighborhood subunit ( <i>Rukun Warga</i> ) appointed by the Lurah to oversee social and environmental conditions of approximately 200 households, and acting as a liaison between the Ketua RT and the Lurah. |
| Ketua RT    | Head of subdistrict of an RW called a <i>Rukun Tetangga</i> . This functionary acts as a liaison amongst approximately 50 households.  |
| Kios        | Small kiosk used by vendors.   |
| KIP         | Kampung Improvement Program.   |
| Kole-Kole   | Small narrow fishing boat or <i>prahu</i> , often carved from a single log; and sometimes with a single or double carved outrigger. Usually paddled, but sometimes augmented with a hand-held sail.                    |
| Kota        | City.  |
| Kotamadya   | Urban District or Municipal Government presided over by a Mayor.   |
| Lorong      | Unimproved narrow street or alley.   |
| Lurah       | Local appointed official, presides over activities of an administratively designated 'neighborhood' or <i>Kelurahan</i> .  |
| Mandi       | Referring to bathing or a bath-house.  |
| MEIP        | Metropolitan Environmental Improvement Programme.  |
| Mesjid      | Mosque.  |
| NUDS        | National Urban Development Strategy  |

|                         |   |
|-------------------------|---|
| NGO                     | Non-Governmental Organization.  |
| NUDS                    | National Urban Development Strategy.  |
| Orang Asli              | Original or native person   |
| Parusa                  | 'For use' usufruct land use system practiced previously in Batu Merah.  |
| Pasar                   | Marketplace.  |
| PDAM                    | Quasi-public drinking water provision company subsidized by national and regional government ( <i>Perusahaan Daerah Air Minum</i> ).  |
| Pembangunan             | Development.  |
| Pemda                   | Regional Government ( <i>Pemerintah Daerah</i> ).   |
| Peremajaan              | Urban renewal or rejuvenation.  |
| Pertamina               | Indonesian National Oil Company.  |
| Prahu                   | Small narrow fishing boat; often carved from a single log; and sometimes with a single or double carved outrigger. Usually paddled, but sometimes augmented with a sail. In Maluku frequently known as <i>Kole-Kole</i> . |
| PKK                     | Family Prosperity Foundation ( <i>Pembinaan Kesejahteraan Keluarga</i> .)   |
| Repelita                | Five year National Development Plan, <i>Rencana Pembangunan Lima Tahun</i> . Repelita I spanned the period 1968/1969 to 1973/1974. The current plan, Repelita VII is in effect through 2004.                              |
| Rukun Warga<br>or RW    | A 'citizens association', administrative subdistrict of a Kelurahan.  |
| Rukun Tetangga<br>or RT | A 'household association', administrative subunit of a Rukun Warga.   |

|           |  |
|-----------|--|
| Rp.       | Rupiah. Exchange rates fluctuated from 2,2500 rupiah per USD in 1997 to more than 15, 000 rupiah per USD in 1998.        |
| SD        | Elementary School ( <i>Sekolah Dasar.</i> )  |
| SMP       | Middle School ( <i>Sekolah Menengah Pertama.</i> )   |
| SMA       | High School ( <i>Sekolah Menengah Atas.</i> )  |
| Tata kota | Urban planning   |
| Tk.       | <i>Tingkat or Level</i> , as government administrative level. Tk I is provincial government, Tk. II is local government. |
| TPS       | Temporary waste disposal site ( <i>Tempat Pembuangan Sampah Sementara.</i> )   |
| UNDP      | United Nations Development Programme.  |
| UNCHS     | United Nations Centre for Human Settlements  |
| Unpatti   | Pattimura University ( <i>Universitas Pattimura</i> ), located on Ambon Island.  |
| VOC       | Nederlandsche Vereenidge Ooast Indische Compangnie, Dutch United East Indies Company.                                    |
| Wai       | Water (Ambonese).  |
| Warung    | Small stall, shop or eating place  |
| WC        | Water Closet.  |

## BIBLIOGRAPHY

- Abdurrachman, P. R. 1978. 'Moluccan responses to the first intrusions of the West.' In Soebadio and Sarvaas (eds.) *Dynamics of Indonesian history*. Amsterdam: M.N.P., 161-88.
- Acker, Barry and Esseveld, R. 1983. 'Objectivity and the truth: problems in doing feminist research.' *Women's studies international forum* 6(4):423-435.
- Adams, Douglas 1991. *Last chance to see*. New York: Harmony Books.
- Adhiati, M. Adriana and Bobsien, Armin (eds.) 2001. 'Indonesia's transmigration programme – an update.' Down to Earth Website: <http://dte.gn.apc.org/ctrans.htm> (Accessed 10 December 2002).
- Akrich, Madeline 1992. 'The de-description of technical objects.' In Bijker, Wiebe, E. and Law, John (eds.) *Shaping technology, building society: studies in socio-technical change*. Cambridge, MA.: MIT Press, 205-224.
- Alavi, Hamza 1972. 'The state in post-colonial societies: Pakistan and Bangladesh.' *New left review* 74:59-81.
- Alcalde, Javier Gonzolo 1987. *The idea of third world development*. New York: University Press of America.
- Amin, Samir 1976. *Unequal development: an essay on social formations of peripheral capitalism*. New York: Monthly Review Press.
- Amin, Samir 1990. *Delinking*. London: Zed Books.
- Andaya, Leonard Y. 1991. 'Local trade networks in Maluku in the 16<sup>th</sup>, 17<sup>th</sup> and 18<sup>th</sup> centuries.' *Cakalele* 2(2):71-96
- Armstrong, Warwick, and McGee, T.C. 1985. *Theatres of accumulation: studies in Asian and Latin American urbanization*. New York: Methuen.
- Asian Development Bank (ADB) 1991. *The urban poor and basic infrastructure and services in Asia and the Pacific*. Manila: ADB.
- Asian Development Bank (ADB) 1997. *Megacities: environmental challenges in the 21st century*. Manila: ADB.

Asian Development Bank (ADB) 1998. Special issue on the Asian financial crisis. *ADB Review* 30(4):1-28.

Asian Development Bank (ADB) Website 2001. *Key indicators of developing Asian and Pacific countries*. [www.adb.org/documents/2001update](http://www.adb.org/documents/2001update) (Accessed 1 February, 2001).

Australian Department of Foreign Affairs and Trade (ADFAT) 2000. *Indonesia Fact Sheet*. [www.dfat.gov.au/geo/fs/indo.pdf](http://www.dfat.gov.au/geo/fs/indo.pdf) (Accessed October 15 2000).

Badan Koordinasi Penanaman Modal (BKPM) 1996. *Indonesia, A brief guide for investment*. Jakarta: BKPM.

Badan Perencanaan Daerah (Bappeda) TK I Maluku 1991. *Rencana Maluku 1990-91-1995-96*. Ambon: Bappeda TK I.

Badan Perencanaan Nasional (Bappenas) 1997. *Eastern Indonesia Population and Development Research Project Newsletter* 3-4(entire volume).

Barrows, Harlan H. 1923. 'Geography as human ecology.' *Annals of the association of American geographers* 13:1-14.

Bassett, Thomas 1988. 'The political ecology of peasant-herder conflicts in the Northern Ivory Coast.' *Annals of the association of American geographers* 78 (3):453-472.

Bebbington, A. 1988. *Farmer strategies in regional agricultural change*. Lima, Peru: International Potato Center.

Bell, Morag and Roberts, Neil 1991. 'The political ecology of dambo soil and water resources in Zimbabwe.' *Transactions of the Institute of British geographers*, 16:301-318.

Bender, B.D. 1967. 'A refinement of the concept of the household: families, co-residence and domestic functions.' *American anthropologist* 69:493-504.

Benton, Ted 1989. 'Marxism and natural limits: an ecological critique and reconstruction.' *New left review* 178:51-86.

Berger, John 1977. *Ways of seeing*. New York: Penguin.

Berry, B.J.L. 1974. *Land use, urban form and environmental quality*. Chicago: Department of Geography Research Series.

Biro Pusat Statistik (BPS) Indonesia 1990. *Statistik Indonesia 1990*. Jakarta: BPS.

Biro Pusat Statistik (BPS) Indonesia 1991. *Population of Maluku province. Results of the 1990 population census, seri S, nomor 1.* Jakarta: BPS.

Biro Pusat Statistik (BPS) Indonesia 1995a. *Perpindahan penduduk dan urbanisasi di Indonesia.* Jakarta: BPS Bagian Statistik Demografi / C.V. Putra Jaya.

Biro Pusat Statistik (BPS) Indonesia 1995b. *Hasil survei penduduk antar sensus (SUPAS)* Jakarta: BPS Bagian Statistik Demografi.

Biro Pusat Statistik (BPS) Indonesia 1999. 'Gross regional domestic product of provinces in Indonesia by industrial origin 1995-1998.' *Statistik Indonesia 1999.* Jakarta: BPS.

Biro Pusat Statistik (BPS) Indonesia 2000. *Hasil survei penduduk antar sensus (SUPAS) 2000.* Jakarta: BPS Bagian Statistik Demografi.

Biro Pusat Statistik (BPS) Indonesia Website 2001. *Statistik Indonesia 2001.* Jakarta. Indonesian National Government website: [www.indonesia.bps.gov](http://www.indonesia.bps.gov) (Accessed 10/5/2000).

Biro Pusat Statistic (BPS) Kantor Statistik Kotamadya Ambon 1983. *Kotamadya Ambon dalam angka.* Ambon: Kantor Statistik.

Biro Pusat Statistic (BPS) Kantor Statistik Kotamadya Ambon 1988a. *Kecamatan Sirimau dalam angka.* Ambon: Kantor Statistik Kotamadya Ambon.

Biro Pusat Statistic (BPS) Kantor Statistik Kotamadya Ambon 1988b. *Kecamatan Nusaniwe dalam angka.* Ambon: Kantor Statistik Kotamadya Ambon

Biro Pusat Statistic (BPS) Kantor Statistik Kotamadya Ambon 1991. *Kotamadya Ambon dalam angka.* Ambon: Kantor Statistik.

Biro Pusat Statistic (BPS) Kantor Statistik Kotamadya Ambon 1993a. *Kecamatan Sirimau dalam angka.* Ambon: Kantor Statistik Kotamadya Ambon.

Biro Pusat Statistic (BPS) Kantor Statistik Kotamadya Ambon 1993b. *Kecamatan Nusaniwe dalam angka.* Ambon: Kantor Statistik Kotamadya Ambon.

Biro Pusat Statistic (BPS) Kantor Statistik Kotamadya Ambon 1996a. *Kecamatan Sirimau dalam angka.* Ambon: Kantor Statistik Kotamadya Ambon.

Biro Pusat Statistic (BPS) Kantor Statistik Kotamadya Ambon 1996b. *Kecamatan Nusaniwe dalam angka.* Ambon: Kantor Statistik Kotamadya Ambon.

- Biro Pusat Statistic (BPS) Kantor Statistik Kotamadya Ambon 1997. *Kotamadya Ambon dalam angka*. Ambon: Kantor Statistik Kotamadya Ambon.
- Biro Pusat Statistic (BPS) Kantor Statistik Propinsi Maluku 1996. *Maluku Dalam Angka*. Ambon: BPSKSPM.
- Biro Pusat Statistic (BPS) Indonesia Sensus Ekonomi Podes 1988 *Sensus 1988*. Jakarta: BPS.
- Biro Pusat Statistic (BPS) Indonesia Sensus Ekonomi Podes 1996. *Sensus 1996*. Jakarta: BPS.
- Black, R. 1990. 'Regional political ecology in theory and practice: a case study from northern Portugal.' *Transactions of the institute of British geographers* 15:35-47.
- Blaikie, Piers 1995. 'Changing environments or changing views? A political ecology for developing countries.' *Geography* 80:203-14.
- Blaikie, Piers and Brookfield, Harold C. (eds.) 1987. *Land degradation and society*. London: Methuen.
- Boardman, Robert and Shaw, Timothy 1995. 'Protecting the environment in Indonesia: policies and programs., In Dwivedi, O.P. and Vajpeyi, Dharendra K. (eds.) *Environmental policies in the third world. A comparative analysis*. Westport, Connecticut: Greenwood Press, 85-107.
- Boomgaard, Peter 1997. 'Introducing environmental histories of Indonesia.' In Boomgaard, P., Colombijn, F. and Henley, D. (eds.) *Paper landscapes. explorations in the environmental history of Indonesia*. Leiden: Koninklijk Instituut voor Taal-Land-en Volkenkunde Press, 1-58.
- Borthwick, Mark 1998. *Pacific century: the emergence of modern Pacific Asia* (2nd Edition). Boulder, Colorado: Westview Press.
- Bourdieu, Pierre 1964 *The Algerians*. Boston: Beacon Press (Translated by Alan Ross).
- Bourdieu, Pierre 1977. *Outline of a theory of practice*. London: Cambridge University Press.
- Bourdieu, Pierre 1980. *The logic of practice*. Stanford, California: Stanford University Press.
- Bourdieu, Pierre 1984. *Distinction: a social critique of the judgement of taste*. Cambridge, MA.: Harvard University Press.

- Bourdieu Pierre 1985a. 'The genesis of the concepts of "habitus" and "field".' *Sociocriticism* 2(2):11-24
- Bourdieu, Pierre 1985b. 'The social space and the genesis of groups.' *Theory and society* 7(2):723-44.
- Bourdieu, Pierre 1988. *Homo academicus*. Menlo Park: Stanford University Press.
- Bourdieu, Pierre 1989. 'Social space and symbolic power.' *Sociological theory*, 7(1):14-25.
- Bourdieu, Pierre 1990. *In other words: essays towards a reflexive sociology*. Stanford, California: Stanford University Press.
- Bourdieu, Pierre 1998. *Acts of resistance. Against the tyranny of the market*. (Trans. Richard Nice). New York: The New Press.
- Bourdieu, Pierre 1999. 'The social conditions of the international circulation of ideas.' In Shusterman, Richard (ed). *Bourdieu, a critical reader*. Oxford: Blackwell Publishers, Ltd.
- Bourdieu, Pierre [et al.]. 1999. *The weight of the world: social suffering in contemporary society*. Stanford, California: Stanford University Press.
- Bourdieu, Pierre and Wacquant, Loic J.D. 1992. *An invitation to reflexive sociology*. Chicago: University of Chicago Press.
- Bowen, John R. 1986. 'On the political construction of tradition: *gotong royong* in Indonesia.' *Journal of Asian studies*, XLV(3):545-561.
- Boyden, S. 1979. 'An integrative ecological approach to the study of human settlements.' *Man and the biosphere technical notes No. 12*. Paris: UNESCO.
- Brinkhoff, Thomas 2000. *Principal agglomerations and cities of the world*. <http://www.citypopulation.de.19.20.00> (Accessed 8 April, 2000).
- Broad, R. 1995. 'The political economy of natural resources: case studies of the Indonesian and Philippine forest sector.' *The journal of developing areas* 29:317-340.
- Brookfield, Harold C. 1964. 'Questions on the human frontiers of geography.' *Economic geography* 40(4):283-303.

- Brookfield, Harold C., Hadi, Abdul S., Mahmud, Zaharah, and Byron, Yvonne [et al.]. 1991. *The city in the village: the in-situ urbanization of villages, villagers, and their land around Kuala Lumpur, Malaysia*. Singapore: Oxford University Press.
- Bryant, D., Burke L., McManus, J., and Spalding M., 1998. *Reefs at risk: a map based indicator of threats to the world's coral reefs*. Washington, D.C., World Resources Institute.
- Bryant, Raymond 1992. 'Political ecology.' *Political geography* 11:12 -36.
- Bryant, Raymond and Bailey, Sinead 1997. *Third world political ecology*. New York: Routledge.
- Bryman, Alan 1988. *Quantity and quality in social research. Contemporary social research: 18* (series editor Martin Bulmer). London: Unwin Hyman.
- Bunce, R.G.H., Ryskowski, M.G., and Paoletti, M.G. (eds.) 1993. *Landscape ecology and agroecosystems*. Boca Raton: Lewis Publishers.
- Bullard, Robert D. (ed.) 1993. *Confronting environmental racism: voices from the grassroots*. Boston: South End Press.
- Busch, Lawrence and Juska, Arunas 1997 'Beyond political economy: actor networks and the globalization of agriculture.' *Review of international political economy* 4(4):688-708.
- Buttimer, A. 1978. 'Charism and context: the challenge of *la geographie humaine*.' In Ley, D. and Samuels, M.S. (eds.) *Humanistic geography: prospects and problems*. London: Croon Helm.
- Butzer, Karl 1989. 'Cultural ecology.' In Gaile G., and Wilmott, C.J., (eds.), *Geography in America*. Columbus, Ohio: Merrill Publishing Company.
- Cairncross, Sandy, Hardoy, Jorge E., and Satterthwaite, David 1990. 'New partnerships for healthy cities.' In Hardoy, Jorge, E., Cairncross, Sandy, and Satterthwaite, David, *The Poor die young. Housing and health in Third World cities*. London: Earthscan Publications, Ltd., 245-291.
- Callon, Michael 1991. 'Techno-economic networks and irreversibility.' In Law, John (ed.) *A sociology of monsters: essays on power, technology and domination*. New York: Routledge, 132-161.

- Callon, Michael 1992. 'The dynamics of techno-economic networks'. In Coombs, R., Saviotti P., and Walsh V.(eds). *Technological change and company strategies: economic and sociological perspectives*. London: Harcourt Brace Jovanovich.
- Callon, Michael 1995. Four models for the dynamics of science. In Jasanoff, S. [et al.] (eds.). *Handbook of science and technology studies*. Thousand Oaks, CA.: Sage Press, 29-63.
- Cardoso, Fernando H., and Faletto, Enzo 1979. *Dependency and development in Latin America*. Berkeley: University of California Press.
- Carney, Judith 1993. 'Converting the wetlands, engendering the environment: the intersection of gender with agrarian change in The Gambia.' *Economic geography* 69:329-348.
- Castells, Manuel 1996. *The rise of the network society*. Cambridge, MA.:Blackwell Publishers.
- Chandra, Nayan 1998. 'Blown away.' *Far Eastern economic review* (December 25 & January 1):22-26.
- Chapman, Margaret D. 1989. 'The political ecology of fisheries depletion in Amazonia.' *Environmental conservation* 16(4):331-337.
- Chauvel, Richard Harry 1980. *A modern social and political history of the Ambonese Islands*. Publisher unknown.
- Clark, J.R. 1998. *Coastal Seas: the conservation challenge*. Oxford: Blackwell.
- Cloke, Paul, Philo, Chris and Sadler, David (eds.) 1991. *Approaching human geography. An introduction to contemporary theoretical debates*. New York: The Guilford Press.
- Cohen, M. 1993. 'Megacities and the environment.' *Finance and Development*, 30(2):44-48.
- Connell, John and Lea, John P. 1995. *Urbanisation in Polynesia*. Pacific policy paper 14. Canberra: National Centre for Development Studies, Australian National University.
- Cooley, Frank. 1962. *Ambonese adat: a general description*. New Haven, Connecticut: Yale University Department of Southeast Asia Studies (Cultural Report Series No. 10).
- Costa, Frank J., Dutt, Ashok, K., Ma, Laurence J.C., and Noble, Allen G. (eds.) 1989. *Urbanization in Asia. Spatial dimensions and policy issues*. Honolulu: University of Hawaii Press.

- Cribb, R. 1988. *The politics of environmental protection in Indonesia*. Clayton: Centre of Southeast Asian Studies, Monash University (Working Paper 48).
- Cribb, R. 1990. 'The politics of pollution control in Indonesia.' *Asian survey* 30:1116-1127.
- Dawe, A. 1979. 'Theories of social action.' In Bottomore T. and R. Nisbet (eds.) *A history of sociological analysis*. London: Heinemann.
- Day, J., Porter J., and Dawson, M. 1993. *Ambon '93 Expedition: preliminary report*. Newcastle, UK: University of Newcastle.
- DeGraaf, H.J. 1977. *Geschiedenis van Ambon de Zuid-Molukken*. Frankvet: Wever.
- Denevan, William, 1983. 'Adaptation, variation and cultural geography.' *The professional geographer* 35:399-407.
- Departemen Pekerjaan Umum Cipta Karya Perangkat (DPUCKP) Republik Inodonesia 1996. *Pekerjaan pemantaran pelaksanaan pengembangan peremajaan permukiman kumuh di Ambon. Laporan akhir, tahun anggaran 1996/97*. Jakarta: P.T. Kwartana Handal Jaya.
- Departemen Transmigrasi Republik Indonesia, Kantor Wilayah Propinsi Maluku (DTRIKWPM) 1992/1993. *Ruang likup pelaksanaan pembangunan hutan tanaman industri transmigrasi terpadu*. Ambon: DTRIKWPM.
- Detwyler, Thomas 1971. *Man's impact on the environment*. New York: McGraw-Hill.
- Devas, Nick 1989. 'Issues in the financing of local government in Indonesia.' *Planning and administration* 2:30-40.
- Dharmapatni, Ida Ayu Indira and Firman, Tommy 1995. 'Problems and challenges of mega-urban regions in Indonesia: the case of Jabotabek and the Bandung metropolitan area. In McGee. T.G. and Robinson, Ira M. *The mega-urban regions of Southeast Asia*. Vancouver: University of British Columbia Press, 296-314.
- Djajadiningrat, S.T. 1994. 'Pembangunan berkelanjutan dan berwawasan lingkungan.' *Hukum lingkungan* 1(1): 4-24.
- Doel, M.A. 1999. *Poststructuralist geographies: the diabolical art of spatial science*. Edinburgh: Edinburgh University Press.
- Dos Santos, Theotonio 1976. 'The crisis of development theory and the problem of dependence in Latin America.' In Bernstein, H. (ed.) *Underdevelopment and development*. New York: Penguin Publishers, 57-80.

Douglass, Mike 1990a. *Urban and regional development strategies in Indonesia*. Honolulu: Department of Urban and Regional Planning, University of Hawaii, and United Nations Centre for Regional Development.

Douglass, Mike 1990b. 'The environmental sustainability of development: coordination, incentives and political will in land use planning of the Jakarta metropolis.' *Third World planning review* 11(2):211-238.

Douglass, Mike 1992. 'The political economy of urban poverty and environmental management in Asia: access, empowerment and community based alternatives.' *Environment and urbanization* 4(2):9-32.

Douglass, Mike, with Nuria Ciafalo, Mike DiGregorio, Kathleen Lee, Sandy Lee and Malia Zoghlin 1992. *Urban poverty and policy alternatives in Asia*. Prepared for the Division of Industry, Human Settlements and Environment. United Nations Economic and Social Commission for Asia and the Pacific (March 1992). Honolulu: University of Hawaii Department of Urban and Regional Planning.

Douglass, Mike, Lee, Yok-shiu F. and Lowry, Kem 1994. 'Introduction to the special issue on community-based urban environmental management in Asia.' *Asian Journal of Environmental Management* 2(1):i-xiv.

Douglass, Mike 1998. 'World city formation on the Pacific Rim: poverty, "everyday" forms of civil society and environmental management.' In Friedmann, John and Douglass, Mike (eds.), *Cities for citizens. Planning and the rise of civil society in a global age*. New York: John Wiley and Sons.

Douglas, Mike, and Ong, Ooi Giok Ling 2001. 'Industrializing cities and the environment in Pacific Asia: towards a policy framework and agenda for action.' In Rock, M. and Angel, D. (eds) *Asia's clean revolution: industry, growth and environment*. Sheffield, U.K.: Greenleaf Publications.

Drakakis-Smith, D. 1990. *Third world cities*. New York: Routledge.

Drakakis-Smith, D.W. 2000. *Third world cities*. London; New York: Routledge.

Duncan, James S. 1985. 'Individual action and political power: a structuration perspective.' In Johnston, R.J. (ed.). *The future of geography*. London: Methuen, 176-189.

Eastern Indonesia Population and Development Research Project Newsletter 1996. 'Data Corner: migration in Eastern Indonesia.' Jakarta: Eastern Indonesia Population and Development Research Project, 2(4):14-16.

- Eden, Michael J. 1996. 'Tropical wetland degradation and strategies for management.' In Eden, Michael J. and Parry, John T., *Land degradation in the tropics. Environmental and policy issues*. London: Pinter, 169-176.
- Eldridge, Philip 1989. 'NGOs in Indonesia: popular movement or arm of government?' *Working Paper 55*. Melbourne: Centre of Southeast Asian Studies, Monash University.
- Eriako Associates 1997. *Maluku, sea lands of bounty for trade, investment and tourism*. Ambon: Pemerintah Propinsi Daerah Tingkat I Maluku.
- Escobar, Arturo 1996. 'Constructing nature. Elements for a poststructural political ecology.' In Peet, Richard, and Watts, Michael (eds.) *Liberation Ecologies. Environment, development, social movements*. New York: Routledge, 46-68.
- Evans, S.M., Dawson, M., Day, J., Frid, C.L.J., Gill, M.M.E., Pattisina, L.A., and Porter, J. 1995. 'Domestic waste and TBT pollution in coastal areas of Ambon Island (Eastern Indonesia).' *Marine pollution bulletin* 30: 109-115.
- Evers, Hans-Dieter, and Korff, Ruediger 1986. 'Subsistence production in Bangkok.' *Development: seeds of change* 4:50-55.
- Far Eastern Economic Review (FEER) 1998a. 'Income distribution 1970-1996.' (June 4):22.
- Far Eastern Economic Review (FEER) 1998b. 'A lost decade? Pessimism over Asia's rebound grows.' (June 18):12-15.
- Feagin, Joe R., Orum, Anthony M., and Sjoberg, Gideon (eds) 1991. *The case for the case study*. Chapel Hill, North Carolina: University of North Carolina Press.
- Fearnside, P.M. 1997. 'Transmigration in Indonesia: lessons from its environmental and social impacts.' *Environmental Management*, 21(4): 553-570.
- Firman, Tommy 1992. 'The spatial pattern of urban population growth in Java 1980-1990.' *Bulletin of Indonesian economic studies* 28(2): 95-109.
- FishInfo 1994. *Coral reefs of Eastern Indonesia: Beyond the myth*. Ambon, Fisheries Issues Working Group Maluku (brochure).
- Folbre, Nancy 1986. 'Hearts and spades: paradigms of household economics.' *World development* 14(2):245-255.
- Forbes, Dean 1996. *The Asian metropolis. Urbanization and the Southeast Asian city*. Melbourne: Oxford University Press.

- Fortman, Louise 1995. 'Talking claims: discursive strategies in contesting property.' *World Development* 23(6):1053-1063
- Fortune 1999. 'Corporate economic clout – top 100 firms.' (April 28):15.
- Frank, Andre Gunder 1969. *Capitalism and underdevelopment in Latin America*. New York: New York Monthly Review Press.
- Frank, Andre Gunder 1988. 'The world economic crisis today: retrospect and prospect.' *Scandinavian journal of development alternatives* 7(2-3):181-215.
- Freeman, Mike 1993. *Pemerintah Indonesia: The Indonesian government system*. Canberra: Australian International Development Assistance Bureau.
- Friedmann, Harriet 1980. 'Household production and the national economy: concepts for the analysis of agrarian formations.' *Journal of Peasant Studies* 7(2):158-218.
- Friedmann, John 1986. 'The world city hypothesis.' *Development and change* 17(1):69-83.
- Friedmann, John 1992. *Empowerment: the politics of alternative development*. Cambridge, MA.: Blackwell.
- Friedmann, John, and Rangan, H. (eds.) 1993. *In defense of livelihood: comparative studies in environmental action*. West Hartford, Connecticut: Kumarian Press.
- Friedmann, John, and Wolff, Goetz 1982. 'World city formation: an agenda for research and action.' *International journal of urban and regional research* 6(3):309-344.
- Gardiner, P., and Oey-Gardiner M. 1991. 'Pertumbuhan dan perluasan kota ke Indonesia.' *Kompas* (May 7):4.
- Ghai, D., and Vivian, J.M. (eds.) *Grassroots environmental action: peoples participation in sustainable development*. London: Routledge.
- Gilbert, Alan, and Gugler, Josef 1992. *Cities, poverty and development: urbanization in the Third World*. New York: Oxford.
- Gilbert, Nigel (ed.) 1993. *Researching social life*. Newbury Park, California: Sage Publications, Inc.
- Gillis, M 1988. 'Indonesia: public policies, resource management and the tropical forest.' In Repetto, R. and Gillis, M. (eds.) *Public policies and the misuse of forest resources*. Cambridge, MA.: Cambridge University Press.

- Ginsburg, Norton, Koppel, Bruce, and McGee, T.G. (eds.). 1991. *The extended metropolis: settlement transition in Asia*. Honolulu: University of Hawaii Press.
- Glacken, Clarence 1967. *Traces on the Rhodian shore: nature and culture in Western thought from ancient times to the end of the eighteenth century*. Berkeley: University of California Press.
- Glaser, Barney G., and Strauss, Anselm L. 1967. *The discovery of grounded theory; strategies for qualitative research*. Chicago: Aldine Publishing Co.
- Goss, Jon 1992. 'Research report. transmigration in Maluku. Notes on present condition and future prospects.' *Cakalele, Maluku research journal* 3/ 1992.
- Goudie, Andrew 1981. *The human impact on the natural environment*. (3<sup>rd</sup> edition) Cambridge, MA.: The MIT Press.
- Gray, Alan, Hull, Terence, Raharto Aswatini, Daliyo, and Jones, Gavin 1995. 'Population growth and change.' In Jones, Gavin W. and Raharjo, Yulfita, *People, land and sea. Development challenges in Eastern Indonesia*. Canberra: Australian National University Printing Service, 35-58.
- Griemas, A. and Courtes, J. 1982. *Semiotics and language: an analytical dictionary*. Bloomington, IN.: Indiana University Press.
- Grimes, Barbara D. 1993. *The pursuit of prosperity and blessing: social life and symbolic action on Buru island, Eastern Indonesia*. A thesis submitted for the degree of Doctor of Philosophy, the Australian National University. (December 1993).
- Grossman, L. 1977. 'Man-environment relationships in anthropology and geography'. *Annals of the association of American geographers* 67:126-144.
- Grossman, L. 1984. *Peasants, subsistence ecology and development in the highlands of Papua New Guinea*. Princeton: Princeton University Press.
- Grossman, L. 1993. 'The political ecology of banana exports and local food production in St. Vincent, Eastern Caribbean.' *Annals of the association of American geographers* 83:347-367.
- Guyer, J., and Peters R. 1987 *Household budgets and women's incomes*. Working Paper 28. Boston, Massachusetts: Boston University African Studies Center.
- Hainsworth, Geoffrey B. 1985. 'Economic growth, basic needs and environment in Indonesia.' *Southeast Asian affairs* (1985):152-173.

Hamilton, F.E.I. 1986. 'The multinationals: spearhead or spectre?' In Dixon, C.J., Drakakis-Smith, D. and Watts, H.D. (eds.) *Multinational Corporations and the Third World*. London: Croon Helm, 1-23.

Haque, M. Shamsul 1999. *Restructuring development theories and policies. A critical study*. Albany: State University of New York Press.

Hardoy, Jorge E., and Satterthwaite, David 1989. *Squatter citizen: life in the urban third world*. London: Earthscan Publications.

Hardoy, Jorge, Mitlin, Diana and Satterthwaite, David 1992. *Environmental problems in Third World cities*. London: Earthscan.

Harpham, Trudy, Lusty, Tim and Patrick Vaughan (eds) 1988. *In the shadow of the city. Community health and the urban poor*. Oxford: Oxford University Press.

Harris, O. 1981. 'Households as natural units.' In Young, K., Wolkowitz C. and McCullagh R. (eds.) *Marriage and the Market*. London: CSE Books.

Harrison, Bennett 1989. 'The big firms are coming out of the corner. The resurgence of economic scale and industrial power in the age of "flexibility".' *Proceedings of the international conference on industrial transformation and regional development in an age of global interdependence, 18-21 September 1989*. Nagoya, Japan: United Nations Centre for Regional Development.

Harvey, David 1995. 'Globalisation in question.' *Rethinking Marxism* 84:1-17.

Harvey, David 1993. 'The nature of environment: dialectics of social and environmental change.' In Milliband, Ralph, and Panitch, Leo (eds.) *Socialist register 1993*. London: Merlin Press, 1-51.

Harwell, Emily 1999. 'Remote sensibilities: discourses of technology and the making of Indonesia's natural disaster, 1997-1998.' *Development and change* 33:

Hecht, S.B. 1985. 'Environment, development and politics: capital accumulation and the livestock sector in eastern Amazonia.' *World development* 13:663-84.

Heritage, John C. 1988. 'Ethnomethodology.' in Giddens, Anthony and Turner, Jonathan. *Social theory today*. Stanford, California: Stanford University Press, 224-272.

Hershkovitz, Linda 1993. 'Political ecology and environmental management in the Loess Plateau, China.' *Human ecology* 21(4): 327-353.

- Heywood, Peter 1990. 'Multiple group membership and intra-household resource allocation.' In Rogers, Beatrice L., and Schlossman, Nina P.(eds.) *Intra-household resource allocation: issues and methods for development policy and planning*. Proceedings of workshop, Gloucester, Massachusetts, October 1983.
- Hidayat, Dedy N. 1999. 'Mass Media: between the palace and the market.' In Baker, Richard W. [et al.] (eds.). *Indonesia, the challenge of change*. New York: St. Martin's Press, 179-198.
- Higgins, Benjamin (ed.) 1982. *Regional development in small island nations*. Nagoya: United Nations Centre for Regional Development.
- Hikam, Muhammed A.S. 1999. 'Non-governmental organizations and the empowerment of civil society.' In Baker, Richard W. [et al.] (eds.). *Indonesia, the challenge of change*. New York: St. Martin's Press, 217-229.
- Hill, Hal 1989. *Unity and diversity: regional economic development in Indonesia since 1970*. Singapore: Oxford University Press.
- Hill, Hal (ed.) 1994. *Indonesia's New Order: the dynamics of socio-economic change*. Honolulu: University of Hawaii Press.
- Hinrichsen, D. 1998. *Coastal waters of the world*. Washington, D.C.: Island Press.
- Horowitz M.M.and Little, P.D. 1987. 'African pastoralism and poverty: some implications for drought and famine.' In Glantz, M.H. (ed.) *The international politics of the environment: actors, interests and institutions*. Oxford: Clarendon Press.
- Hugo, Graeme J., Hull, Terence H., Hull Valerie J., and Jones, Gavin W. 1987. *The demographic dimension in Indonesian development*. Singapore: Oxford University Press.
- Hultman, Johan 1993. 'Approaches and methods in urban ecology.' *Geografiska annaler* 75B:41-49.
- Hurst, P. 1990. *Rainforest politics: ecological destruction in Southeast Asia*. London: Zed books.
- Hymer, Stephen 1972. 'The multinational corporation and the law of uneven development.' In Bhagwati, J. (ed.) *Economies and the world order from the 1970s to the 1990s*. New York: Collier-Macmillan.
- IGU Commission on Environmental Problems 1984. *Problems of the environment in urbanization. Proceedings of the 4<sup>th</sup> symposium of the IGU commission on environmental problems, Tokyo Japan*. Moscow: Nakua.

International Monetary Fund 2000. *Letter of intent, January 2000*. IMF.

Indah L. and Chasnah, E. 1997. 'Kualitas mikrobiologi perairan pantai Teluk Ambon bagidalam ttitinjaudari segikesehatanlingkungan.' In Wenno, L. F. [et al.] (eds.). *Prosiding seminar dan lokakarya pengelolaan Teluk Ambon dan Teluk Binnen Maluku*. Ambon: Balai Litbang Sumberdaya Laut, P30 (in collaboration with the University of Pattimura and Bappeda Tk. I Maluku), 56-62.

Indonesian Center for Environmental Law (ICEL) Website 1998. 'Natural Resources Management Program.' <http://www.icel.net> (Accessed 28 September 1999).

Inside Indonesia Website 1999. 'Indonesia's drift to hard times.' 10 September, <http://www.serve.com/inside/digest> (Accessed 28 September 1999).

International Institute for Environment and Development 1994. *Environmental synopsis of Indonesia*. London: IIED.

Jackson, K. and Pye, L., 1978 (eds.) . *Political power and communications in Indonesia*. Berkeley: University of California Press.

Jacobs, Hubert. 1975. 'Wanneer werd de stad Ambon Gesticht? Bij een vierde eeuwfeest.' *Bijdragen tot de taal-land-en volkenkunde*. Deel 131.

Jamlean, S. 1990. *Studi mengenai pengaruh sampah padat terhadap kesehatan masyarakat di Kebon Cenkeh Batu Merah Atas Kecamatan Sirimau Kotamadya Ambon*. Ambon: Pusat Penelitian Universitas Pattimura.

Japan International Cooperation Agency (JICA) 1997. *The Study on Flood Control for Ambon and Pasahari Area in The Republic of Indonesia*. Directorate General of Water Resources Development, Ministry of Public Works, Jakarta.

Jarosz, Lucy 1993. 'Defining and explaining tropical deforestation: shifting cultivation and population growth in colonial Madagascar.' *Economic geography* 69:366-79.

Jarosz, Lucy 1996. 'Defining deforestation in Madagascar.' In Peet, Richard and Watts, Michael (eds.) *Liberation ecologies. Environment, development, social movements*. New York: Routledge, 148-164.

Jellinek, Lea 1991. *The wheel of fortune. The history of a poor community in Jakarta*. Honolulu: University of Hawaii Press.

Jenkins, Rhys 1987. *Transnational Corporations and uneven development. The internationalization of capital and the Third World*. London: Methuen.

- Johnston, Ronald J. 1986. *Philosophy and human geography. An introduction to contemporary approaches*. (Second edition). Baltimore, MD: Edward Arnold.
- Johnston, Ronald J. 1991. *Geography and geographers: Anglo-American human geography since 1945* (4<sup>th</sup> edition). New York: Edward Arnold.
- Jones, G. 1993. 'Dilemmas in expanding education for faster economic growth.' In Ogawa, Naohoro, Jones, Gavin W. and Williamson, Jeffrey G (eds.) *Human resources in development along the Asia-Pacific Rim*. Singapore: Oxford University Press.
- Jones, Gavin W. and Manning, Chris 1992. 'Labour force and employment during the 1980s.' In Booth, Anne (ed.) *The oil boom and after: Indonesian economic policy and performance in the Soeharto era*. Singapore: Oxford University Press, 364-410.
- Jones, Gavin W., and Raharjo, Yulfita (eds.) 1995. *People, land and sea; development challenges in Eastern Indonesia*. Canberra: ANU Printing Service.
- Kantor Walikotamadya Daerah Tingkat II Ambon 1989. *Pola dasar Ambon*. Ambon: Kantor Walikotamadya Daerah Tingkat II.
- Karaniya 2000. 'Bumi seribu pulau dan beribu Mayat.' *Tempo* (23 January):24-25.
- Kenzer, Marina 1999. 'Healthy cities: a guide to the literature. *Environment and urbanization* 11(1):201-220.
- Keuning, J. 1956. *Ambon, Portugezen en Nederlanders, Ambonse geschiedenis tot het einde van de 17 de eeuw*.
- Knaap, Gerrit J. 1987. *Kruidnagelen en Christenen. De Verenigde Oost-Indische Compagnie en de bevolking van Ambon 1656-1696*. Dordrecht-Holland, Foris Publications.
- Knaap, Gerrit J. 1991. 'A city of migrants: Kota Ambon at the end of the seventeenth century.' *Indonesia* (Cornell), 51:106-128.
- Kobayashi, Audrey and Mackenzie, Suzanne (eds.) 1989. *Remaking human geography*. London: Unwin Hyman.
- Kompas 1996. 29 February Issue.
- Kompas 2000 Online (Accessed February 12, 2000).
- Kotamadya Ambon Dinas Kebersihan 1996. *Pengelolaan sampah kota Ambon*. Ambon: Kotamadya Dati II.

- Kristiadi, J. 1999. 'The armed forces.' In Baker, Richard W. [et al.] (eds.). 1999. *Indonesia, the challenge of change*. New York: St. Martin's Press, 99-113.
- Laclau, Ernesto 1977. *Politics and ideology in Marxist theory*. London: Verso.
- Latour, Bruno 1988. *The pasturization of France*. Cambridge, MA.:Harvard University Press.
- Latour, Bruno 1993. *We have never been modern*. Cambridge, MA.: Harvard University Press.
- Latour, Bruno 1996. 'On interobjectivity.' *Mind, culture and activity*. 3(4):228-245.
- Latour, Bruno 1997. 'The trouble with actor network theory.' *Soziale Welt* 47:369-381.
- Law, John 1992. 'Notes on the theory of actor-network: ordering, strategy and heterogeneity'. *Systems practice* 5:379-393.
- Law, John 1999. 'After ANT: complexity, naming and topology.' In Law, John and Hassard, John (eds.). 1999. *Actor network theory and After*. Oxford: Blackwell Publishers. Sociological Review Monograph, 1-14.
- Lederman, Rena 1990. 'Pretexts for ethnography: on reading fieldnotes.' In Sanjek, R. (ed.). *Fieldnotes: the makings of anthropology*. Ithaca: Cornell University Press, 71-91.
- Legowo, T.A. 1999. 'The Bureaucracy and Reform.' In Baker, Richard W. [et al.] (eds.). 1999. *Indonesia, the challenge of change*. New York: St. Martin's Press, 81-98.
- Leonard, H. Jeffrey 1989. *Environment and the poor: development strategies for a common approach*. New Brunswick: Transaction Books.
- Linder, Staffan B. 1996. *The Pacific century: economic and political consequences of AsianPacific Dynamism*. Stanford, California: Stanford University Press.
- Lo, Fu-chen, and Yeung, Yue-man (eds.) 1996. *Emerging world cities in Pacific Asia*. New York: United Nations University Press.
- Lopulalan, D.L. J. 1997. '1997 study of environmental health in Batu Merah.' Report for Pusat Penelitian Lingkungan Hidup, Inpres Kesehatan No. 5, 1974. Ambon: Universitas Pattimura ISIP/ Ilmu Administrasi.
- Lowry, Kem 1990. 'UNDP urban sector projects in Indonesia: a case study.' Draft report. Honolulu: Department of Urban and Regional Planning, University of Hawaii.

- Lynch, M. and Woolgar, S. (eds.) 1990. *Representation in scientific practice*. Cambridge, MA.: MIT Press.
- MacAndrews, C. (ed.) 1986. *Central government and local development in Indonesia*. Singapore: Oxford University Press.
- MacAndrews, C. 1994. 'Politics of the environment in Indonesia.' *Asian Survey* 34:369-380.
- Mackie, Jamie. 1993. 'Indonesia: economic growth and depoliticization.' In Morley, J. (ed.) *Driven by growth: political change in the Asia-Pacific region*. Armonk: M.E. Sharpe.
- Marsh, George Perkins 1864. *Man and nature: or physical geography as modified by human action*. New York: Charles Scribner.
- Martin, A.F. 1951. 'The Necessity for Determinism.' *Transactions of the Institute of British Geographers* 17:1-11.
- Martinez-Alier, J. 1990. *Ecological economics: energy, environment and society*. Blackwell: Oxford.
- Masuku, M. Ali 1994. *Pengembangan sumber daya manusia dan pengaruhnya terhadap partisipasi masyarakat dalam pembangunan di kelurahan Waihaong Kecamatan Nusaniwe Kotamadya Daerah tingkat II Ambon*. (Unpublished master's thesis) Ambon: Fakultas ilmu sosial dan ilmu politik, University of Pattimura.
- McBeth, John 1998. 'Return to roots' *Far Eastern economic review* (June 4):64-65.
- McBeth, John 1999. 'Maluku: migrants and the balance of power' *Far Eastern economic review* (June 11) 24-26.
- McChesney, Robert W. 1999. *Rich media, poor democracy*. Urbana: University of Illinois Press.
- McGee, T.G. 1991. 'The emergence of desakota regions Asia: expanding a hypothesis.' In Ginsburg, Norton, Koppel, Bruce and McGee, T.G. *The extended metropolis. Settlement transition in Asia*. Honolulu: University of Hawaii Press, 3-26.
- McGee, T.G. 1994. 'Foreword.' In Askew, Marc, and Logan William S. (eds.). *Cultural identity of urban change in Southeast Asia*. Geelong, Victoria: Deakin University Press.

- McGee, T.G. 1995. 'Metrofitting the emerging mega-urban regions of ASEAN: an overview.' In McGee, T.G., and Robinson, Ira M. 1995. *The mega-urban regions of Southeast Asia*. Vancouver: University of British Columbia Press, 3-26.
- McGee, T.G., and Robinson, Ira M. 1995. *The mega-urban regions of Southeast Asia*. Vancouver: University of British Columbia Press, 296-314.
- McHarg, Ian 1971. *Design with nature*. New York: Doubleday & Company, Inc..
- Mearns, David 1996. 'Class, status and habitus in Ambon'. Working paper, Darwin: Northern Territory University.
- Mearns, David 1999. 'Urban kampongs in Ambon: whose domain? Whose desa?' *Australian journal of anthropology* 10(1):15-31.
- Metropolitan Environmental Improvement Programme (MEIP) 1990. *Asia's cities and the environment: pressures of growth strategies for management. Report from the first inter-country workshop of the UNDP/World Bank Metropolitan Environmental Improvement Programme*. Honolulu, Hawaii: East-West Center Environment and Policy Institute.
- Meyer, Paul A. and Hardjodimedjo, Martono 1989. 'Maluku: the modernization of the spice islands.' In Hill, Hal (ed.) *Unity and diversity: regional economic development in Indonesia since 1970*. Singapore: Oxford University Press, 549-566.
- Mitchell, J. Clyde 1983. 'Case and situation analysis.' *Sociological review* 31(2):187-211.
- Monk, Katherine A., De Fretes, Yance, and Reksodiharjo-Lilley, Gayatri 1997. *The ecology of Nusa Tenggara and Maluku*. The ecology of Indonesia series, volume V. Singapore: Periplus Editions (HK) Ltd.
- Moore, D.S. 1993. 'Contested terrain in Zimbabwe's Eastern highlands: political ecology, ethnography and peasant resource struggles.' *Economic geography* 69:380-401.
- Moore, Donald S. 1996. 'Marxism, culture and political ecology. Environmental struggles in Zimbabwe's Eastern highlands.' In Peet, Richard, and Watts, Michael (eds.). *Liberation ecologies: environment, development, social movements*. London: Routledge, 125-147.
- Morfit, Michael 1986. 'Pancasila Orthodoxy.' In MacAndrews, C. (ed.) *Central government and local development in Indonesia*. Singapore: Oxford University Press, 42-55.

- Moser, Caroline 1996. *Confronting crisis. Household responses to poverty and vulnerability in four poor urban communities*. Washington, D.C.: World Bank. Environmental Sustainable Development Studies and Monographs Series No. 8.
- Moss, S., and Mark van Der Wal 1998. 'Rape and run in Maluku: exploitation of living marine resources in Eastern Indonesia.' *Cakalele, Maluku Research Journal* 9(2): 81-94.
- Moulaert, Frank and Scott, Allen J. (eds.) 1997. *Cities, enterprises and society on the eve of the 21st century*. London: Pinter.
- Murdoch, Jonathan. 1998. 'The spaces of actor-network theory.' *Geoforum* 29(4):357-374.
- Murray, R. 1971. 'The internationalization of capital and the nation state.' *New left review* 67 (May-June):84-109
- Naamin, N. 1987. 'Consequences of excessive fishing effort on fishery resources in Indonesia.' Paper presented at the Symposium on the Exploitation and Management of Marine Fishery Resources in Southeast Asia. Darwin, Australia.
- Nagtegaal, L. 1995. 'Urban pollution in Java.' In Nas P. J. M. (ed.), *Issues in urban development; case studies from Indonesia*. Leiden: Research School CNWS, 9-30.
- Nas, Peter J. M (ed.) 1995. *Issues in urban development: case studies from Indonesia*. Leiden: Research School CNWS.
- Nas, Peter J. M. 1986. 'The early Indonesian town.' in Nas, P. J. M. (ed.) *The Indonesian city: studies in urban development and planning*. Dordrecht: Foris Publications.
- National Oceanic and Atmospheric Administration (NOAA) Website 1999. *International workshop on coastal mega-cities: challenges of growing urbanisation of the world's coastal areas*. <http://icm.noaa.gov/> (Accessed 8 December, 1999).
- Neumann, R.P. 1992. 'Political ecology of wildlife conservation in the Mt. Meru area of Northeast Tanzania.' *Land degradation and rehabilitation* 3:85-98.
- Neumann, R.P. and Schroeder, R.A. 1995. 'Manifest ecological destinies.' *Antipode* (special issue) 27:321-428.
- Nietschmann, Bernard 1973. *Between land and water: the subsistence ecology of the Miskito indians, Eastern Nicaragua*. New York: Seminar Press.
- Nietschmann, Bernard 1979. 'Ecological change, inflation and migration in the Far West Carribean.' *Geographical review* 69:1-24.

- Nijkamp, Peter 1994. 'Improving urban environmental quality: socioeconomic possibilities and limits.' In Pernia, Ernesto M. (ed.) *Urban poverty in Asia. A survey of critical issues*. New York: Oxford University Press, 241-287.
- O'Connor, James 1988. 'Capitalism, nature, socialism: a theoretical introduction.' *Capitalism, nature, socialism* 1:11-38.
- O'Connor, James 1991. 'Conference Papers on Capitalism and Nature.' Pamphlet 1, CNS/CES Pamphlet /Occasional Paper Series. Santa Cruz, CA.: Capitalism, Nature, Socialism/ Center for Political Ecology, University of California, Santa Cruz.
- O'Connor, Martin 1993. 'On the misadventures of capitalist nature.' *Capitalism, nature, socialism* 4(3):7-40.
- O'Connor, R.A. 1983. *A theory of indigenous Southeast Asian urbanism*. Singapore: Institute of Southeast Asian Studies.
- Ongkosongo, Otto S. R. (ed) 1991. *Potensi permasalahan, dan pengelolaan Teluk Ambon dan Teluk Binnen Maluku*. Ambon: Balai Litbang Sumberdaya Laut, Lembaga Ilmu Pengetahuan Indonesia (LIPI).
- Ortner, Sherry 1984. 'Theory in anthropology since the sixties.' *Comparative studies in society and history* 26(1):126-166.
- Park, R.E. 1915. 'The city: suggestions for the investigation of human behaviour in the city environment.' *American journal of sociology*, 42:1-15.
- Park, R.E. 1934. 'Human ecology'. *American journal of sociology* 20:577-612.
- Patronis, L. 1998. Personal correspondence - Indonesian Family Life Survey, Batu Merah, January 1998.
- Patton, Michael Quinn 1980. *Qualitative evaluation methods*. Newbury Park, California: Sage Publications, Inc.
- Patton, Michael Quinn 1981. 'Making methods choices.' (reprint). St. Paul Minnesota: University of Minnesota.
- Peet, Richard, and Thrift, Nigel (eds) 1989. *New models in geography*. Boston: Unwin Hyman.

- Peet, Richard, and Watts, Michael 1996. 'Liberation ecology. Development, sustainability and environment in an age of market triumphalism.' In Peet, Richard and Watts, Michael (eds.) *Liberation ecologies. Environment, development, social movements*. New York: Routledge, 1-45.
- Peluso, Nancy Lee 1992. *Rich forests, poor people. Resource control and resistance in Java*. Berkeley: University of California Press.
- Peluso, Nancy Lee 1993. 'Political ecology of extraction and extractive reserves in East Kalimantan, Indonesia.' *Development and change* 23(4):49-74.
- Pemerintah Propinsi Daerah Tingkat I Maluku (PPDTIM) 1992. *Rencana Struktur Tata Ruang Propinsi Daerah Tingkat I Maluku 2005*. Bandung: Lembaga Penelitian Perencanaan Wilayah dan Kota, ITB.
- Pemerintah Kotamadya Dati II Ambon Kandepe Koperasi 1996. *Statistik 1990/91-1995/96*. Ambon: PKDIIAKK.
- Pemerintah Propinsi Daerah Tingkat I Maluku (PPDTIM) - Pariwisata 1997. *Ambon* (tourism brochure). Ambon: PPDTIM.
- Pezzoli, Keith 1993. 'Sustainable livelihoods in the urban milieu. in Friedmann, J. and Rangan, H. (eds). *In defense of livelihood: comparative studies in environmental action*. West Hartford, Connecticut: Kumarian Press, 127-154.
- Pile, S., and Rose, G. 1990. 'All or nothing? Politics and critique in the modernism-postmodernism debate.' *Environment and planning D: society and space* 10:123-136.
- Pile, Steven 1991. 'Practising interpretative geography.' *Transactions of the institute of British geographers* 16:458-469.
- Ponting, Clive 1991. *A green history of the world*. London: Sinclair Stevenson
- Ponting, Clive 1999. *The twentieth century: a world history*. New York: Henry Holt.
- Population Reference Bureau (PRB) Website 2000. *PRB 2000 world population datasheet*. [www.data.worldpop.org](http://www.data.worldpop.org) (Accessed 3 January, 2001).
- Porter, Philip W. 'Geography as human ecology. A decade of progress in a quarter century.' *American behavioral scientist* 22(1):15-39.
- Potter, R.B. 1993. *Urbanisation in the third world*. Oxford: Oxford University Press.

Potter, Robert B., and Lloyd-Evans, Sally 1998. *The city in the developing world*. Harlow: Longman.

Potter, Robert B., and Salau, Ademola T. (eds.)1990. *Cities and development in the third world*. New York: Mansell.

Praseno [et al.](eds.). 1990. *Perairan Maluku dan sekitarnya*. Ambon: Balai Penelitian dan Pengembangan Sumberdaya Laut, Pusat Penelitian dan Pengembangan Oseanologi, Lembaga Ilmu Pengetahuan Indonesia (LIPI).

Punch, Maurice 1986. *The politics and ethics of fieldwork*. (Qualitative research methods series, Vol. 3). Newbury Park, California: Sage Publications, Inc..

Rachbini, Didik J. 1999. 'Growth and private enterprise.' *In Baker, Richard W. [et al.] (eds.). Indonesia, the challenge of change*. New York: St. Martin's Press, 13-40.

Randall, Richard H. and Eldredge, Lucius 1983. *A marine survey of the shoalwater habitats of Ambon, Pulau Pombo, Pulau Kasa and Pulau Babi, Indonesia*. Guam: University of Guam Marine Laboratory.

Rappaport, Roy 1973. *Nature, culture and ecological anthropology*. Andover, Massachusetts: Warner Modular Publication.

Reclus, Elisee 1895. *The earth and its inhabitants*. New York: D. Appleton & Co..

Reed, Robert R. 1976 'Indigenous urbanism in South-East Asia.' *In Yeung, Y.M. and Lo, C.P. (eds.) Changing Southeast Asian cities: readings on urbanization*. Madison, Wisconsin: Oxford University Press, 14-27.

Reid, Anthony 1980. 'The structure of cities in southeast Asia, fifteenth to seventeenth centuries.' *Journal of Southeast Asian studies* 11:240-42.

Richer, Stephen 1988. 'Fieldwork and the commodification of culture: why the natives are restless.' *Canadian review of sociology and anthropology* 25(3):406-420.

Rigg, J. 1997. *Development in Southeast Asia*. London: Routledge.

Rimmer, Peter 1995. 'Moving goods, people and information: putting the ASEAN mega-regions in context.' *In McGee, T.G., and Robinson, Ira M. (eds.) The mega-urban regions of Southeast Asia*. Vancouver: University of British Columbia Press, 150-177.

- Rimmer, Peter 1996. 'International transport and communications interactions between Pacific Asia's emerging world cities.' In Lo, Fu-chen, and Yeung, Yue-man (eds.). *Emerging world cities in Pacific Asia*. New York: United Nations University Press, 17-36.
- Rinakit, Sukardi 1999. 'Trade unions and labor unrest'. In Baker, Richard W. [et al.] (eds.). 1999. *Indonesia. The challenge of change*. New York: St. Martin's Press, 139-157.
- Robison, Richard 1990. 'Problems of analysing the middle class as a political force in Indonesia.' In Tanter, Richard and Young, Kenneth (eds.). *The politics of middle class Indonesia*. Clayton, Victoria, Australia: Centre of Southeast Asian Studies, Monash University. (Monash Papers on Southeast Asia - No. 19), 127-137.
- Robison, Richard 1988. 'Authoritarian states, capital-owning classes and the politics of NICs: the case of Indonesia.' *World Politics* 41:1-13.
- Roseland, Mark (ed.) 1991. *Eco-city dimensions. Healthy communities, healthy planet*. New Haven, CT: New Society Publishers.
- Rowles, Graham D. 1975. 'Reflections on experiential field work.' In Ley, D. and Samuels, M. (eds.) *Humanistic geography: problems and prospects*. Chicago: Maaroufa, 173-193.
- Rumphius, G.E. 1910. *De Ambonsche historie (I)*. Jakarta: Arsip Nasional. (copy of original manuscript circa 1690).
- Sahlins, Marshall 1964. 'Culture and environment.' In Tax, S. (ed.) *Horizons of Anthropology*. Chicago: Aldine.
- Salafsky, Nick, Dugelby, Barbara L, and Terborgh, John W. 1993. 'Can extractive reserves save the rain forest? An ecological and socioeconomic comparison of nontimber forest product extraction systems in Peten, Guatemala and West Kalimantan, Indonesia.' *Conservation biology* 7(1):39-52.
- Sanjek, R. 1990 (ed.). *Fieldnotes: the makings of anthropology*. Ithaca: Cornell University Press.
- Sauer, Carl O. 1938. Destructive exploitation in modern colonial expansion. *International geographical congress, Amsterdam, Vol. III, part C*, 494-499.
- Sassen, Saskia. 1994. *Cities in a world economy*. Thousand Oaks: Pine Forge Press.

- Sauer, Carl O. 1956. 'The agency of man on earth.' In Thomas, W.L. (ed.) *Man's role in changing the face of the earth*. Chicago: Chicago University Press, 49-69.
- Schmink, Marianne. 1984. 'Household economic strategies: review and research agenda.' *Latin American research review* XIX(3):87-102.
- Schroeder, Richard 1993. 'Shady practice: gender and the political ecology of resource stabilization in Gambian garden/orchards.' *Economic geography* 69:349-365.
- Schroeder, R. and Suryananta, K. 1996. 'Gender and class power in agroforestry systems. Case studies from Indonesia and West Africa.' In Peet, Richard, and Watts, Michael (eds.) *Liberation Ecologies. Environment, development, social movements*. New York: Routledge, 188-204.
- Schwartz, Adam 1994. *A nation in waiting: Indonesia in the 1990s*. Sydney: Allen & Unwin Pty. Ltd.
- Schwarz, Adam 2000. *A nation in waiting. Indonesia's search for stability*. . Boulder, Colorado: Westview Press.
- Schwela, Dietrich 1995. 'Public health implications of urban air pollution in developing countries.' Geneva: World Health Organization Paper.
- Scott, Margaret 1998. 'Indonesia reborn?' *New York review of books*, 13 August.
- Shiva, Vandana 1991. *Ecology and the politics of survival: conflicts over natural resources in India*. London: Sage.
- Simmons, I. 1989. *Changing the face of the earth*. Oxford: Basil Blackwell.
- Slater, Candace 2000. 'Present day images of Amazonia or justice for whom?' in Zerner, C. (ed.) *People, plants and justice: the politics of nature conservation in an era of market triumphalism*. New York: Columbia University Press.
- Sloan, N.A. and Sugandhy, A. 1994. 'An overview of Indonesian coastal environmental management.' *Coastal management* 22:215-233.
- Smail, John R.W. 1998. 'Social change and nationalism.' in Borthwick, Mark *Pacific century: the emergence of modern Pacific Asia* (2nd Edition). Boulder, Colorado: Westview Press.
- Smith, Joan and Wallerstein, Immanuel. 1984. *Households and the world economy*. Beverley Hills, CA: Sage Publications.

Soegijoko, Budhy, Tjahjati S., and Dharmapatni, Ida Ayu Indira 1997. 'Urban governance and poverty alleviation in Indonesia: a preliminary assessment.' In Porio, Emma (ed.) *Urban governance and poverty alleviation in Southeast Asia. Trends and prospects*. Quezon City, Philippines: Ateneo de Manila University.

Soemodihardjo, Subagjo, Birowo, S., and Romimohtarto, K. 1987. *Teluk Ambon. Biologi, perikanan, oseanografi dan geologi*. Ambon: Balai Litbang Sumberdaya Laut, Pusat Penelitian dan Pengembangan Oseanologi, Lembaga Ilmu Pengetahuan Indonesia (LIPI).

Soerjani, Mohamad 1982. *Environmental problems and management in Indonesia*. Jakarta: University of Indonesia Center for Research on Human Resources and the Environment.

Southwick, C.H. 1976. *Ecology and the quality of our environment*. New York: Van Nostrand.

Spirn, Anne W. 1984. *The granite garden: urban nature and human design*. New York: Basic Books, Inc..

Steward, Julian H. 1953. 'Evolution and process.' In Kroeber, A.L (ed.) *Anthropology today*. Chicago: University of Chicago press.

Stillwell, Frank J.B. 1978. 'Competing analyses of the spatial aspects of capitalist development.' *Review of radical political economics* 10(3):18-27.

Stoddart, D.R. 1986. *On Geography*. New York: Basil Blackwell, Inc.

Stonich, Susan 1993. *"I am destroying the land": the political ecology of poverty and environmental destruction in Honduras*. Boulder, Colorado: Westview Press.

Storper, M. and Walker, R. 1989. *The capitalist imperative: territory, technology and industrial growth*. Oxford: Basil Blackwell.

Stren, Richard, White, Rodney, and Whitney, Joseph 1991. *Sustainable cities: urbanization and the environment international perspective*. Boulder, Colorado: Westview Press.

Stubbs, Jeffry and Clark, Giles (eds.) 1996. *Megacity management in the Asia Pacific Region*. Manila: Asian Development Bank.

- Suhandjaja, Andria 1991. 'Indonesia.' In ADB *The urban poor and basic infrastructure services in Asia and the Pacific.* Volume II, *Proceedings of the Asian Development Bank/Economic Development Institute Regional Seminar (22-28 January 1991)*. Manila: ADB, 332-365.
- Sullivan, John 1992. *Local government and community in Java. An urban case study*. Singapore: Oxford University Press.
- Surbakti, Ramlan 1999. 'Formal political institutions.' In Baker, Richard W. [et al.] (eds.). *Indonesia, the challenge of change*. New York: St. Martin's Press, 61-79.
- Suriaatmadja, R.E., and Harger, J.R.E. 1993. *Indonesian environmental policy and marine pollution and degradation control*. Jakarta: LH/UNESCO Marine Pollution Training Project (INS/86/001).
- Swyngedouw, E.S. 1997. 'Power, nature and the city: the conquest of water and the political ecology of urbanization in Guyaquil, Ecuador.' *Environment and planning A* 29:311-332.
- Tamaela, S. John 1972. *Beberapa kemungkinan penggarapan berdirinya Kota Ambon*. Conference paper presented 10 November, Panitia Khusus Sejarah Kota Ambon, Ambon: Universitas Pattimura.
- Taylor, John G. 1979. *From modernization to modes of production: a critique of the sociologies of development and underdevelopment*. London: Macmillan Press.
- Teltscher, Susanne 1995. 'Small trade and the world economy: informal vendors in Quito, Ecuador.' *Economic Geography*, 70 (2):167-187
- Thiele, Leslie Paul 1997. *Thinking politics. Perspectives in ancient, modern and postmodern political theory*. Chatham, New Jersey: Chatham House Publishers, Inc.
- Thomas William L. (ed.) 1956. *Man's role in changing the face of the earth*. Chicago: University of Chicago Press, 49-69.
- Tirtosudarmo, Riwanto 1995. 'Development planning and implementation in Eastern Indonesia.' In Jones, Gavin W. ,and Raharjo, Yulfita. *People, land and sea; development challenges in Eastern Indonesia*. Canberra: Australian National University Printing Service.
- Tripathi, Salil 1998. 'Now the hard part. Indonesia must grapple with bad loans and bank revamp.' *Far Eastern economic review* (April 16):59-61.

Turner, B.L. II. (ed.) 1990. *Earth as transformed by human action: a global and regional changes in the biosphere over the past 300 years*. Cambridge, MA.: Cambridge University Press.

Turner, Tim 1995. 'The ecological footprint: a new way to look at our impact on the planet.' *Clearing* 91: 8-11.

Uneputti, Tommy 1972. *Latar belakang sejarah lahirnya Kota Ambon*. Ambon: Fakultas Keguruan Jurusan Sejarah Unpatti (Panitya Khusus Sejarah Kota Ambon 10 November 1972). Ambon: Fakultas Keguruan Jurusan Sejarah, Universitas Pattimura.

United Nations (UN) Website 1995. Demographic Yearbook Online. <http://www.un.org/> (Accessed 12 November, 1999).

United Nations Centre for Human Settlements (Habitat) 2001. *Cities in a globalizing world*. London: Earthscan Publications.

United Nations Development Programme (UNDP) 1992. *The human development report*. Geneva: UNDP.

United Nations Development Programme (UNDP) 1994. *United Nations development programme in Indonesia: project profiles*. Jakarta: UNDP

United Nations Development Programme (UNDP) 2000. *The human development report*. Geneva: UNDP.

United Nations Population Division 1995. *World population prospects: 1994 revision*. New York: United Nations.

United States Assistance In Development (USAID) Website 1999. Indonesia: statistics. [www.usaid.gov/pubs/cp98](http://www.usaid.gov/pubs/cp98). (Accessed 14 February, 1999).

United States Library of Congress Website <http://lcweb2.loc.gov/cstudy:@field> (DOCID+id0141) (Accessed 4 January 1999).

Valentijn, F. 1724-26. *Oud en nieuw Oost-Indien*. Dordrecht: Van Braam, Amsterdam: Onder de Linden. (5 Vols.), Vol. II/1:282-283.

Vidal de la Blache, Paul 1926. *Principles of human geography*. London: Constable.

Wackernagel, Mathis, and Rees, William E. 1995. *Our ecological footprint. Reducing human impact on the earth*. New Haven, Connecticut: New Society Publishers.

Waddell, E. 1975. 'How the Enga cope with frost; responses to climatic perturbations in the central highlands of New Guinea.' *Human ecology* 3(4):249-274.

Walikotamadya Kepala Daerah Tk. II 1995. *Rencana pembangunan lima tahun keenam, daerah Kotamadya daerah tingkat II Ambon, 1994.1995 - 1998/1999*. Ambon: Walikotamadya Kepala Daerah Tk. II

Walker, Lyle A., and Rees, William E. 1991. 'Urban density and ecological footprints.' In Roseland, Mark (ed.) *Eco-city dimensions. Healthy communities, healthy planet*. New Haven, CT: New Society Publishers, 96-112.

Walker, R. 1979. 'Human-environment relations.' *Antipode*, 11:2.

Wallerstein, Immanuel 1974. 'Rise and future demise of the world capitalist system.' *Comparative studies in society and history* 16(4):387-415.

Waquant, Loic 1992. Toward a social praxeology: the structure and logic of Bourdieu's sociology. In Bourdieu, Pierre, and Wacquant, Loic J.D. *An invitation to reflexive sociology*. Chicago: University of Chicago Press, 2-59.

Watts, Michael 1983. *Silent violence: food, famine and peasantry in Norther Nigeria*. Berkeley: University of California Press.

Watts, Michael 1989. 'The agrarian question in Africa: debating the crisis.' *Progress in human geography* 13:1-41.

Whatmore, Sarah and Thorne, Lorraine 1997. 'Nourishing networks: alternative geographies of food.' In Goodman, David, and Watts, Michael (eds.) *Globalising food: agrarian questions and global restructuring*. New York: Routledge, 287-304.

Weiss, Edward W. 1992. *Under the rising sun: war, captivity and survival 1941-1945*. Erie, Pennsylvania: Edward W. Weiss.

Wenno, L.F., Hatta, A.M., Heryanto, and Setyawan, W.B. (eds.) 1997. *Prosiding seminar dan lokakarya pengelolaan Teluk Ambon 25-27 Juni 1996*. Ambon: Balai Litbang Sumberdaya Laut P30- LIPI (in collaboration with the University of Pattimura and Bappeda Tk.I Maluku).

Wheatley, P. 1972. 'The concept of urbanism.' In Ucko, P.J., Tringham, R., and Dimbleby, G.W. (eds) *Man, settlement and urbanism*. London: Duckworth, 601-637.

Wheatley, P. 1983. 'Nagara and commandery, origins of the Southeast Asian urban tradition.' Chicago: University of Chicago Department of Geography Research Paper, 209-10.

- Whyte, Anne 1985. 'Ecological approaches to urban systems'. *Nature and Resources* 21(1):13-20.
- Wie, Thee Kian 1991. 'The surge of Asian NIC investment into Indonesia.' *The bulletin of Indonesian economic studies* 27(3):55-58.
- World Bank 1990. *World development report*. New York: Oxford University Press.
- World Bank 1993. *The East Asian development miracle*. New York: Oxford University Press.
- World Bank 1994a. *Indonesia: environment and development, a World Bank country study*. Washington, D.C.: The World Bank.
- World Bank 1994b. *Stability, growth and equity in Repelita VI*. Country Department III: East Asia and Pacific Region. Washington, D.C.: The World Bank.
- World Bank 1997. *World development indicators*. Washington, D.C.: The World Bank.
- World Bank 1998. *World development report*. New York: Oxford University Press and online (Accessed 10 September, 1999).
- World Bank 1999. *Indonesia: development and change*. Washington, D.C.: The World Bank.
- World Bank 2000. *Indonesia: accelerating recovery in uncertain times*. Washington, D.C.: The World Bank.
- World Resources Institute (WRI) Website 1997. *World resources 1996-1997. A guide to the global environment*. [www.wri.org/wrreport](http://www.wri.org/wrreport) (Accessed 10 September, 1999).
- Worster, Donald 1993. *The wealth of nature: environmental history and the ecological imagination*. New York: Oxford University Press.
- Yeung, Yue-Man (ed.) 1993. *Pacific Asia in the 21<sup>st</sup> century: geographical and developmental perspectives*. Hong Kong: Chinese University Press.
- Yin, Robert K. 1989. *Case study research. Design and method*. (Applied social research methods series, v. 5). Newbury Park, California: Sage Publications, Inc.
- Zarsky Lyuba, and Hunter, Jason 1999. 'Communities, markets and city government. Innovative roles for coastal cities in reducing marine pollution in the Asia Pacific region.' In Inoguchi, Takashi, Newman, Edward and Paoletti, Glen (eds.) *Cities and the environment*. Tokyo: United Nations Press, 216-232 (Chapter 12).

Zelinsky, W. 1988. *Nation into state: the shifting symbolic foundations of American nationalism*. Chapel Hill N.C. :University of North Carolina Press.

Zimmerer, Karl S. 1991. 'Wetland production and smallholder persistence: agricultural change in a highland Peruvian region.' *Annals of the Association of American geographers* 81(3):443-463.

Zimmerer, Karl S. 1993. 'Soil erosion and social (dis)courses in Cochabamba, Bolivia: perceiving the nature of environmental degradation.' *Economic geography* 69:312-327.

Zimmerer, Karl S. 1994. 'Human geography and the "new ecology": the prospect and promise of integration.' *Annals of the Association of American geographers* 84(1):108-125.

Zinyama, Lovemore M. 1996. 'Conflicts and contradictions in environmental management in Zimbabwe.' In Eden, Michael J. and Parry, John T., *Land degradation in the tropics. Environmental and policy issues*. London: Pinter, 155-166.