HAWAII AS AN EAST-WEST BRIDGE

A Survey of the Economic Value of Non-Tourist International Activities in Hawaii

A. A. SMYSER

THE EAST-WEST CENTER
HONOLULU, HAWAII 96848
HAWAII AS AN EAST-WEST BRIDGE

A Survey of the Economic Value of Non-Tourist International Activities in Hawaii

Everyone knows Hawaii as one of the world's premiere destination resorts.

Few—even in Hawaii—fully appreciate its potential for East-West cooperation and understanding in a shrinking world.

This survey outlines the existing strong base from which Hawaii starts.

A. A. SMYSER

The East-West Center • Honolulu, Hawaii 96848
THE EAST-WEST CENTER

The East-West Center is a public, nonprofit educational institution established in Hawaii in 1960 by the United States Congress with a mandate “to promote better relations and understanding among the nations of Asia, the Pacific and the United States through cooperative study, training and research.”

Some 2,000 research fellows, graduate students, and professionals in business and government each year work with the Center’s international staff in on major Asia-Pacific issues relating to population, economic and trade policies, resources and development, the environment, culture and communication, and international relations. Since 1960, more than 25,000 men and women from the region have participated in the Center’s cooperative programs.

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Revised edition

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This survey was undertaken to try to measure in a rough fashion the 1989 value of non-tourist international activities in Hawaii—in terms of jobs created and dollars brought into the state from outside its borders.

The study has two key purposes:

1. To demonstrate with appropriate supporting detail that non-tourist international activities already add significantly to the state economy.

2. To persuade decision-makers that non-tourist international activities can (a) be very attractive to the community at large and (b) have great and diverse growth potential—and thus are worthy of top-level support and stimulation.

The goal of this report is to inventory international activities in Hawaii that are separate from our big vacation industry and that help make us a significant East-West bridge the way Geneva (also a resort) is seen as a significant international bridge.

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**Defining Non-Tourist International Activities**

The line between tourist and non-tourist activities is hard to draw. Almost all East-West activities profit from the availability of our great resort plant as a base. This synergy is one of our great assets. Some visitors combine pleasure with their business. If business is the main purpose of their visit, this report counts them as business visitors.

But what is an international activity?

One that brings in income from abroad is an obvious international activity.

One that brings income from elsewhere in the United States for international purposes (for example, study about the Pacific and Asia or to do business there) also is an international activity.
What is not an international activity?

Recirculating our own money to teach our own people about the world is not counted. This does not bring us money from elsewhere.

This report seeks to identify income brought to Hawaii from elsewhere for international activities that are not primarily tourist-oriented—and the jobs such income creates.

**How This Report Was Prepared**

Many people have helped in the compilation of this report. The State Department of Business and Economic Development was particularly helpful. So was the Resource Systems Institute of the East-West Center.

The author canvassed more than 200 individuals and reference sources for information and suggestions. Some of the figures in this report are “hard,” but most are only “ballpark” estimates. Sometimes income is estimated from reasonably solid job counts. Sometimes the reverse is true. In each case, how the figures were arrived at is explained.

The report is a compendium of highlights, not a compendium of everything. A more comprehensive survey should produce higher totals.

This report is, however, the first to pull together in one place the economic highlights of Hawaii’s non-tourist activities as an East-West bridge. In that sense, it may be useful to build on for the future.

**About the Author**

A. A. Smyser has been with the *Honolulu Star-Bulletin* since 1946 as a writer and editor. He retired in 1983 but continues to write editorial-page commentaries as contributing editor.

In 1987 he prepared a report for the East-West Center entitled *Hawaii’s Future in the Pacific: Disaster, Backwater or Future State?*

In 1988 he was steering committee chairman for the Governor’s Congress on Hawaii’s International Role.
Both the final report of the Congress and the report on Hawaii's future in the Pacific are available from the Public Affairs Office of the East-West Center.
Report Highlights

NON-TOURIST international activity is a significant element of Hawaii's economy, producing about 20,000 jobs and $660 million in income. These represent about 3 percent of our gross state product and compare with the position tourism held in the Hawaii economy 40 years ago.

Latest figures show 3,916 jobs in pineapple and 6,516 in sugar for a total of 10,432 jobs created directly. The figures in this report include some jobs created indirectly. It appears clear, however, that non-tourist international activity is now a greater force in the Hawaii economy than these two once-dominant industries.

Executive Summary of Findings

Non-tourist international activity has many appeals:

- It can diversify us away from heavy dependence on tourism.
- It offers a greater proportion of middle- and high-paying jobs than tourism.
- It can meet the goals set by the 1988 Governor's Congress on Hawaii's International Role to preserve the aloha spirit, protect our physical environment and our physical and mental health, narrow the gap between rich and poor, and put into Hawaii more than it takes out.
- It can be of world service by providing in many fields of endeavor a needed East-West bridge.
- It builds on our existing assets.
- It has tremendous growth potential.

This report shows:

CHAPTER 3—We are no longer the “hub of the Pacific” for surface shipping, but we are an air hub, and we have the opportunity to be a communications hub equal to any in the world.
CHAPTER 4—A significant number of international meetings are held here already.

CHAPTER 5—We already attract the equivalent of 5,500 full-time students for international study each year. Converted to tourist days, they represent more tourists (about 137,500) than Hawaii had in any year prior to 1957. Research adds still more to our East-West education and training potential.

CHAPTER 6—High-technology industries have a strong base and export growth potential. The Big Island is becoming an international science island.

CHAPTER 7—High-tech carries over to agriculture and aquaculture. It gives Hawaii a significant world teacher/research role.

CHAPTER 8—Our film production, garment, petroleum, and coral manufacturing industries have substantial international dimensions.

CHAPTER 9—Hawaii is the center for administering military affairs throughout the Pacific and also a center for many Pacific-oriented government and diplomatic activities.

CHAPTER 10—We are a Pacific base for (a) retailing, wholesaling, and marketing; (b) importing; (c) financial services; (d) legal and real-estate services; (e) architectural, engineering, planning, consulting, and construction services; (f) international news and information gathering and distribution; (g) resort businesses; and (h) eleemosynary institutions.

CHAPTER 11—We already host international competitions in more than a dozen sports.

CHAPTER 12—We have a strong foundation as a Pacific health research/training center and a perceived potential as a physical fitness center.

CHAPTER 13—We have a significant base for international arts and cultural activities. These can add elements of quality to the life of the community that far exceed their direct economic impact.

CHAPTER 14—We are a key hub for U.S. relations with the islands of the Pacific.
CHAPTER 15—Foreign capital investment in Hawaii real estate may be worth $25-$30 billion (around 10 percent of total statewide real estate value). It embraces only about 1 percent of our land area because it focuses on expensive resort areas.

CHAPTER 16—A plea is made here to “think international” and create a world image of Hawaii as an East-West bridge as well as a resort center.

### Tabular Summary of Income and Job Estimates

Some of the numbers in this report are hard. Some are soft. Some are crunchy soft. The author believes they present at least a reasonable ballpark estimate of the scope of non-tourist international activity in Hawaii that overall is on the low side.

Compared with a gross state product of $22 billion a year and a civilian-military labor force nearing 600,000, they show non-tourist international activity comprising about 3 percent of our economy. This is about the level tourism was at 40 years ago.

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<td>$46,000,000</td>
<td>1,530</td>
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<td>4 Conference and Reception Center</td>
<td>20,000,000</td>
<td>800</td>
</tr>
<tr>
<td>5 Education, Training, Information</td>
<td>93,500,000</td>
<td>3,200</td>
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<td>6 High-Tech Research and Production</td>
<td>112,600,000</td>
<td>1,180</td>
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<td>7 Food Research and Production</td>
<td>50,000,000</td>
<td>1,700</td>
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<td>8 Other Tangible Exports</td>
<td>15,000,000</td>
<td>600</td>
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<td>9 Diplomatic and Government Activities</td>
<td>240,000,000</td>
<td>8,000</td>
</tr>
<tr>
<td>10 Business, Administrative, Marketing, and Consulting Services</td>
<td>78,000,000</td>
<td>2,600</td>
</tr>
<tr>
<td>11 Sports Center</td>
<td>20,000,000</td>
<td>800</td>
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<td>12 Health and Fitness</td>
<td>7,000,000</td>
<td>280</td>
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<td>13 Arts and Culture</td>
<td>750,000</td>
<td>30</td>
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<td><strong>TOTALS</strong></td>
<td><strong>$682,850,000</strong></td>
<td><strong>20,720</strong></td>
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<td><strong>DISCOUNT FOR OVERLAPS</strong></td>
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<td><strong>$660,000,000</strong></td>
<td><strong>20,000</strong></td>
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Note that some jobs in this report are counted in more than one category. High-tech jobs in chapter 6 overlap with chapters 3 (transportation and communication), 5 (education), and 7 (food research and production). There probably are other overlaps. An estimate of their extent is shown in the table above as “Discount for Overlaps.”

Good reason to believe that the bottom-line figures fall on the low side lies in the limited inclusion of jobs created by foreign capital investment (for example, construction work on the new $20 million Tokai University Pacific Center), which runs into large figures every year.

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**Some Trend Notes**

By the estimate of Seiji Naya, vice-president of the East-West Center, nearly a billion dollars “fly” past Hawaii every day in U.S.–Asia/Pacific trade. Another half-billion also fly by due to trade in services. “Catching” more of these flying dollars can be a great boost for our economy.

* * *

A Japanese investor in Hawaii observed that he thinks of Hawaii as a part of the world rather than as a part of the United States (chapter 4).

* * *

Dean David A. Bess of the University of Hawaii College of Business Administration thinks the growth potential of Hawaii as an education/training base for Americans interested in Asia and the Pacific is “stupendous” (chapter 5).

* * *

Businessman Lee Gray, a Hawaii-based Pacific distributor, says Hawaii is an ideal location to be a “brokerage state” for small U.S. businessmen who want to sell in Pacific/Asia markets but lack the experience, funds, or time (chapter 10).

* * *

Globalization of communication is creating more “footloose industries” that can locate pretty much where they please. Examples are in chapters 6 and 10.
No breakdowns are available on eastbound visitors to Hawaii, now 30 percent of our travel market. However, Hawaii Visitors Bureau data on westbound visitors (from the American mainland) show that in 1988 approximately 440,000, or over 11 percent, came here for business-related reasons.
THE REALITY of Hawaii as the “Hub of the Pacific” is something like this:

SURFACE SHIPPING—Dreams of the 1960s of Honolulu as a major Pacific cargo transshipment center have evaporated. Domestic U.S. traffic aside, only about six international cargo vessels a week call at Honolulu harbor each week. Most of these leave lighter than they arrive. That is, international ships deliver cargo in far greater volume than they pick it up.

AVIATION—Honolulu is a small but significant international aviation hub. Two major airlines that base hundreds of international flight personnel here are Continental and United. More than two dozen international airlines provide service through Hawaii.

COMMUNICATION—Fiber optic cable and connections to 22 satellites give Honolulu a communication “hub” potential equal to that of any city in the world especially given its strategic time zone midway between the Americas and Asia.

The reality of modern communication capability is that cities can be either by-passed or benefited, according to how their usage of the capability develops. Honolulu so far is using its potential in a limited way with Pacific military command activities as the single biggest user.

Following are more detailed activity summaries.

**Surface Shipping**

Ships calling at Hawaii harbors require agents; pilot, tug, and stevedore services; fuel, supplies, and oftentimes repairs. Passengers and crew members spend money ashore.
Cargo lines serving non-U.S. points are Nippon Yusen Kaisha (NYK), Tokai Shipping, K-Line, Mitsui-OSK, Nissan Car Carrier, Sea-Land Services, Pace Line (ACTA Shipping), Blue Star Line, Columbus Line, Hapag-Lloyd, Hawaii Pacific Marine Lines, and Philippine Micronesia and Orient (PMO). Special services also deliver petroleum.

About 12 international cruise ship stops are scheduled for 1990 by vessels of Cunard, Royal Viking, P&O/Princess Cruises, and Odyssey lines. These are tourist-oriented but provide a small source of non-tourist travel.

Every year some 900 fishing vessels, primarily Japanese, but also Taiwanese and Korean, use Hawaii as a refueling and service center. They spend about $25 million.

Total full-time equivalent jobs in Hawaii attributable to international shipping are estimated by the Department of Business and Economic Development at 580 with a wage income of $17.5 million. No discount has been entered for the cruise ships.

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**Aviation**

In 1988 Honolulu International Airport was the seventeenth busiest airport in the world and the third busiest in the Pacific after Los Angeles and Haneda at Tokyo.

Business travelers benefit greatly from the increased travel availability due to tourism.

Airlines using Hawaii as a Pacific hub include Continental, United, Northwest, Hawaiian, and Aloha.

Other lines providing international service through Hawaii include Air Nauru, Air Tungaru, Air New Zealand, Air Tours (United Kingdom), All Nippon, America West, American, Canadian Airlines, China Air, Delta, Flying Tigers, Garuda, Japan Air Lines, Korean Airlines, Philippine Airlines, Qantas, Singapore, TWA, and Ward Air.

Continental has 1,500 employees in Hawaii, including 800 flight attendants based here. Eighty percent of its flights to and from Hawaii are international, suggesting about 1,200 employees in international flight activity.
United has 2,400 employees in Hawaii, of whom 1,000 are used for international services. UAL expects these numbers to grow in 1990.

Total aviation jobs attributable to international operations must be around 3,500. If 10 percent of that travel is non-tourist (the author's guess based on Hawaii Visitors Bureau eastbound figures), that would suggest 350 jobs due to non-tourist international travel. Estimating at $30,000 a job, payroll must be at least $10.5 million.

Additional jobs, not counted in this report, are in ground transportation and airport concessions and support services other than Duty Free Shoppers, which is included in chapter 10.

**Communication**

AT&T has established Hawaii as the Pacific hub of a network that can offer worldwide communications to any customer. Thanks to fiber optic cables plus satellite connections, it has a capacity far beyond any conceivable near-term needs and capable of the highest state-of-the-art applications. The U.S. Pacific military command is its largest customer.

AT&T bases a cable ship here, deals with the governments of the Pacific Islands and Guam through here, and conducts international meetings and promotions here such as the Kemper Open golf tournament. The company employs 350 people, all of whom it considers to be in international operations.

GTE Hawaiian Tel estimates some 130 of its employees are engaged in international projects. It, too, serves the U.S. military commands. It has international agreements with 40 countries, owns the telephone authority in the Northern Marianas, and is interested in other Pacific-area projects.

ITT World Communications, Long Distance/USA-US Sprint, MCI Telecommunications, and RCA Global Communications also provide international communications. PEACESAT offers noncommercial satellite links among the Pacific Islands.

Oceanic Cable brings in worldwide news and information services and a number of television programs from Japan.
The U.S. Post Office has an international section with some 15 employees. Federal Express also handles international deliveries, as do DHL, Triple B Freight Forwarders, and others.

Total jobs in Hawaii attributable to international communications probably exceed 600 with a wage income approximating $18 million, estimated at $30,000 a job.
Hawaii as a Conference and Reception Center

ESTIMATE: Income—$20 million; Jobs—800

Hawaii is an attractive meeting place halfway between the Americas and Asia. "I consider Hawaii a part of the world, not a part of the United States," said one Japanese investor in Hawaii.

Meetings are enhanced by Hawaii's premiere resort facilities, which rank with the world's best.

President Albert J. Simone of the University of Hawaii has identified another asset: "We are, in many ways, the gateway between East and West. In Hawaii over 80,000 families speak Japanese at home; 66,000 speak a Philippine language; 20,000 speak Chinese; and nearly 10,000 speak Korean. Also spoken are the major Pacific languages such as Hawaiian, Samoan and Tongan, as well as the major European languages."

Many and significant international conferences are already held here.

Examples include regular meetings of the Japan-Hawaii Economic Council, sub-ministerial meetings on Japan-Hawaii mutual security matters, and the Pacific Telecommunications Conference, which every January draws about 800 participants to Honolulu.

Military strategic conferences in Hawaii each year number between 250 and 400.

Educational institutions host large numbers of conferences and receive large numbers of visitors. Among the most active are the East-West Center, with 60–70 international conferences annually, the University of Hawaii, the Japan-America Institute of Management Science, and Kansai Gaidai Hawaii. These institutions are further discussed in chapter 5.
International-joint venture businesses frequently choose Hawaii as a meeting place for their boards of directors and business conferences.

About 5,000 persons were expected at the International Chemical Congress of Pacific Basin Societies held in Honolulu in December 1989. The World Hydrogen Conference will be held here in 1990, the Pacific Science Congress in 1991. Each will draw thousands of delegates. Smaller but significant 1990 gatherings are planned by the International Fulbright Association, the Pan Pacific Surgical Association, and the Japanese Society of Thoracic Surgery.

The U.S. State Department Reception Center welcomes hundreds of official visitors annually. The Pacific military command headquarters receive many individual visitors, often of high rank or status, in addition to those coming for conferences.

Pacific Forum–CSIS is an internationally funded, Honolulu-based “think tank” that convenes top-level conferences on Pacific issues.

Kapalua Pacific Center on Maui supports periodic small international conferences and symposia/workshops related to state and county planning.

International trade shows are another activity, often sponsored by areas that have a “sister” relationship with Hawaii or one of its subdivisions.

While most meetings draw principally U.S. domestic participation, the international component is substantial and has significant growth potential.

Simultaneous translation facilities are available at Imin Center at the East-West Center and at the Japan-America Institute of Management Science. Translators are trained at the University of Hawaii, which has resources in 80 Asia-Pacific languages.

Proposals are under consideration to build either one or two convention centers in Honolulu to supplement the existing Neal S. Blaisdell Center, Waikiki Shell, and Aloha Stadium facilities. Hotels on six islands have or will have conference/convention facilities.
The City-County of Honolulu hopes to build a five-acre Pacific Nations Center at the head of Bishop Street in downtown Honolulu. It would provide offices for diverse international activities and a financial mall.

The State of Hawaii is considering a high-level visitor conference center in upper Nuuanu Valley.

Full-time employment in this field is not large. The USIA Reception Center has a staff of only 3 plus 25 persons on contract for occasional assignments as escorts and interpreters.

Most other employment attributable to international hosting also is part-time. However, given the needs of a meeting for planning, coordination, lodging, food, and other support services, an estimate of employment equivalent to at least 800 full-time jobs is considered reasonable by some reviewers of this report. An income estimate based on $25,000 per job would be $20 million.
Export industries for Hawaii are commonly seen as things that are raised, shipped away, and bring back income to Hawaii. But our state income is also helped when people come here to spend money, as with the visitor industry. Now we are seeing a relatively new export industry develop in education.

Educational, training, and research activities in Hawaii (see also chapter 6) are enhanced by Hawaii's geographic and cultural location between East and West, by excellent worldwide communication connections, and by ready air access to out-of-state supplies.

International education in Hawaii has two aspects:

- Asia/Pacific residents coming to Hawaii to learn about America.
- Americans coming to Hawaii to learn about Asia and the Pacific.

The first is more highly developed at present, but the second may have even greater growth potential.

President Victor Hao Li of the East-West Center has said: "A critical need is for Americans to better understand Asia. Unless we can substantially raise the level of expertise about Asia—its cultures, languages, societies and history—we cannot expect our country to work effectively with the region. Our capacity to deal with Asia and the Pacific is growing more slowly than the need."

Dean David A. Bess of the University of Hawaii College of Business Administration believes the growth potential in this area is "stupendous."
The Institute of Higher Education (IHE) estimates that 3,648 foreign students were studying in Hawaii colleges in 1987-88. Hawaii Pacific College had 785 students; Brigham Young University of Hawaii, 757; Chaminade University, 211; Hawaii Loa, 104; and 1,791 were at the Manoa, West Oahu, Hilo, and six community college campuses of the University of Hawaii. Their cost-of-living expenditures were estimated at $23 million. Today both enrollment and expenditure figures would be significantly higher.

These figures do not include 5,500 mostly noncredit foreign students who attend the University of Hawaii Summer Session or the extensive outreach programs of the University of Hawaii College of Business Administration, the College of Tropical Agriculture (see chapter 7), and the Schools of Medicine and Public Health (see chapter 12).

The College of Business Administration has been designated as one of five U.S. centers for international business education. The College's Pacific-Asian Management Institute attracts 1,000 summer students each year who are not included in the numbers of the UH Summer Session.

Nor do the IHE figures include the Japan-America Institute of Management Science (JAIMS), Kansai Gaidai Hawaii, Tokyo Honolulu International College, and the soon-to-open Tokai University Pacific Center, which already have more than 400 students full-time and host hundreds of others for shorter terms. JAIMS estimates the JAIMS contribution to Hawaii's international income flow at $3.2 million a year. Kobe-based International Pacific University plans to affiliate with the University of Hawaii Hilo campus.

Nor do the IHE figures include the international programs of the East-West Center, which has a budget of $26 million, an international staff of 300, and awards numerous international fellowships and scholarships that bring here the full-time equivalent of 800 students a year. The Center also hosts hundreds of visitors each year for international conferences and study.

Nor do these figures include:

- The Bishop Museum, which is a primary center for Polynesian and Pacific research.
• The Honolulu Academy of Arts, a research and teaching center for Asian art because of its superb Asian collections.

• Secondary-level international education. There are 124 foreign students at Mid-Pacific Institute. Punahou School hosts an annual student exchange program through its Foundation for Study in Hawaii and Abroad and soon will be opening the privately endowed Wo International Center.

The IHE figures also exclude persons from the other 49 states coming to Hawaii to gain familiarization with international subjects.

Exchange faculty members are another uncounted group. UH has faculty-research exchange agreements with more than 100 colleges and universities worldwide.

Kentucky Fried Chicken of Japan plans to send 5,000 workers to Hawaii in 1990-92 for six-day training courses.

Kapiolani Community College has been giving culinary training to Japanese students for 20 years.

The Federal Aviation Administration has chosen Hawaii as the training area for security personnel from the U.S.-affiliated islands of the Pacific.

A Pacific-wide Aviation Mechanics Program is being developed by Honolulu Community College and the State Department of Transportation.

From these figures, it seems plausible that the equivalent of more than 5,500 full-time students now come to Hawaii each year for international education. These students pay tuitions that cover some or all of their costs. The UH-Manoa Summer Session and the summer sessions of the UH community colleges, for example, are fully self-supporting. In 1989 Hawaii Pacific College estimated its international enrollment at 850 students paying $3.2 million in tuition alone. Mid-Pacific charges its international students $2,000 over regular tuition. Where out-of-state students do not pay the full cost of their education there may be policy issues to be addressed as large growth rates are contemplated.

Since full-time students spend more than eight months in the Islands each year, 5,500 would equate with 137,500 tourists.
spending 10 days each, which is the average length of a visitor stay. This is more tourists than came to Hawaii in any year prior to 1957. Assuming an expenditure of $10,000 per student, this group may contribute $55 million a year to the Hawaii economy. The estimate may be conservative since some students, particularly short-term visitors, are quite well-to-do and may spend $10,000 for a single month of business training.

University of Hawaii ratios suggest about two faculty and staff members for every 10 students. By this measure, foreign students may generate about 1,100 faculty and staff jobs, with slightly more than half being faculty. If these positions average $30,000 each, that would account for $33 million of the above $55 million.

By apportioning the remaining $22 million to food, lodging, and other expenses, it seems reasonable that another 1,100 jobs may be generated at an average of $20,000 per job.

* * *

Another measure of international education in Hawaii lies in research grants from out of state. At the University of Hawaii, research grants total about $72 million a year. They include a substantial international dimension, which, however, is not broken down separately.

In a recent campus survey, major grant recipients were identified as: the Hawaii Institute of Geophysics, $15.6 million; the School of Medicine, $9.2 million; the Institute for Astronomy, $7 million; the College of Natural Sciences, $6 million; the Hawaii Natural Energy Institute, $5.7 million; the College of Tropical Agriculture and Human Resources, $4.1 million; the Pacific Biomedical Research Center, $3 million; the Sea Grant College program, $2.7 million; the Cancer Research Center of Hawaii, $2.4 million; the School of Public Health, $2.4 million; and the School of Hawaiian, Asian and Pacific Studies (SHAPS), $1.1 million.

SHAPS has the broadest Asian curriculum of any U.S. university. It has more than 300 faculty members with Asian and Pacific expertise organized into 10 centers (for example, Chinese, Japanese, Philippine, Pacific Island, Southeast Asian Studies). It offers instruction in 40 languages and has the capability to teach twice that number.
In another survey that listed only grants for international projects, UH ranked thirteenth among all American colleges and universities. The Network for International Technical Assistance tallied UH projects at $52.7 million—$26.7 million in Tropical Agriculture, $11 million in the MEDEX programs of the School of Medicine, $5.3 million in Public Health, and more than $9 million in other schools and colleges. These are not annual figures, however. They are cumulative totals for projects of multiyear durations.

The Network for Technical Assistance said the UH international programs involve 22 languages and 47 countries, including 20 in Asia and the Pacific Islands, 10 in Africa, and 10 in Latin America and the Caribbean.

Other programs at UH with strong international dimensions include international law, nursing, and travel industry management. The UH campus is the international headquarters base for the Law of the Sea Institute, the World Futures Study Federation, and the Asia-Pacific Academic Consortium for Public Health. The UH Center for Interpretation and Translation has programs in conference interpretation and scientific/technical translation.

In addition to campus activity, some 100 or so faculty members engage in off-campus business-research activities, many of which have an international dimension. A coordinator for this activity is the Pacific Business Center Program, which undertakes to link private business with UH resources.

The U.S. Army Pacific command and the U.S. Pacific Fleet are contemplating greater use of Hawaii as a "war college" center. If more forces are pulled back to Hawaii from the Western Pacific, use of Hawaii for international familiarization could intensify.

Hawaii also has a number of organizations that focus on international activities but do not generate substantial amounts of outside revenue. These include the Japan-America Society, the Pacific and Asian Affairs Council, the Pacific Rim Foundation, and the Pacific Islands Association.

Available figures suggest that "education for export" already generates around $93.5 million for Hawaii when one considers the $26 million budget of the East-West Center, the probabilities of at least $20 million for research grants (out of the $72
million mentioned above), and $55 million for the tuition and cost-of-living expenses of 5,500 out-of-state students minus a deduction of $7.5 million for duplication of the East-West Center's fellowship-scholarship grants in both the $55 million student estimate and the $26 million East-West Center figure.

The East-West Center basic budget of $18.5 million and the UH internationally oriented research grants of $20 million are estimated to contribute at least 600 additional positions—300 on the East-West Center staff and probably an equal or greater number at UH.

Combined, the above estimates suggest income for this category of $93.5 million and jobs numbering around 3,200.
Hawaii as a Center for High-Tech Research and Production for Export

ESTIMATE: Income—$112.6 million; Jobs—1,180

The Hawaii High Technology Business Directory of 1988 lists 130 high-technology firms and 61 high-tech support firms. The State High Technology Development Corporation (HTDC) received confidential employment and sales data from these firms that aggregate to revenues of $807.4 million for high-tech firms and $100.9 million for high-tech support firms. Employment was estimated at 8,114 for high-tech firms and 1,371 for support firms. The total operations of GTE Hawaiian Tel are included and account for a significant part of the totals.

HTDC estimates that the number of high-tech firms increased by 45 between 1984 and 1988, annual revenues by $39.3 million, and employees by 752.

William M. Bass, executive director of HTDC, estimates that at least $100 million, or one-eighth of the $807 million attributed to Hawaii high-tech companies, is exported from the United States.

If it is assumed that this one-eighth proportion holds for the other figures, some 1,000 high-tech jobs are attributable to export. In support industries, revenues of $12.6 million and about 180 jobs also would be attributable to export. These figures are the basis of the totals introducing this chapter.

* * *

There is great variety to high-tech activity. Among the fields characterized by high technology are computer applications, electronics, astronomy, agricultural and aquacultural science, energy, oceanography, volcanology, and space.

Many high-tech companies cross into several of these fields, making them hard to isolate by category. Some companies are
large, but most are small employers. The military services are substantial customers of high-technology applications.

The Big Island (Hawaii Island) is the locus of much of this activity because of its distinct geographic features. It is becoming our "Science Island."

The State of Hawaii government has created an impressive array of support organizations and facilities. Among them are:

- The High Technology Development Corporation to oversee high-tech activity;
- The Pacific International Center for High Technology Research (PICHTR) to seek national and international partners for joint research in Hawaii;
- The Natural Energy Laboratory of Hawaii (NELH) at Keahole on the island of Hawaii;
- The Hawaii Ocean Science and Technology Park (HOST Park), adjoining NELH, to provide space for commercial applications of NELH spin-offs;
- The University of Hawaii Research Corporation for funding;
- The University of Hawaii Office of Technology Transfer and Economic Development to promote economic uses of the university's technology base;
- The Manoa Innovation Center at the University of Hawaii to develop promising technologies into prototype products or services;
- The Kaimuki Technology Enterprise Center (KAITEC), which helps start up businesses resulting from UH research;
- The UH Hawaii Natural Energy Institute, formed to help Hawaii achieve energy self-sufficiency after the oil shocks of the early 1970s;
- The Maui Research and Technology Center; and
- The Hawaii Space Development Authority.

In addition, private enterprises have created the Mililani Technology Park in central Oahu and the Maui Research and Technology Park at Kihei, Maui, where fee-simple land is available. The Mililani park enjoys foreign trade zone status. GTE Hawaiian Tel is a partner with the state in KAITEC.
The federally supported Hawaii Volcano Observatory at Kilauea Volcano is an international center for volcano research.

The Pacific Telecommunications Council is permanently headquartered in Honolulu.

### Astronomy

At least 14 telescopes ranging up to 590 inches in diameter have been built or are planned at the top of Mauna Kea on the Big Island. International participants include the United Kingdom, Canada, France, the Netherlands, and Japan. All these facilities operate under the auspices of the University of Hawaii. Additional telescopes for U.S. strategic research are located atop Haleakala Volcano on Maui.

Capital investment atop Mauna Kea exceeds $200 million. Annual operating budgets are about $25 million.

Private companies supporting this activity include Canada-France-Hawaii Telescope (CFHT) and the Joint Astronomy Centre. Staff families are becoming a significant part of the Kamuela community on the Big Island.

### Oceanography

Hawaii is home base for the Pacific Congress on Marine Science and Technology (PACON), which has participants from 17 countries. Jack Harmon, co-chairman of PACON and general manager of SEACO, a Kaneohe-based ocean research corporation, estimates oceanographic research and development brought $50 million and about 650 jobs to Hawaii in 1989. He predicts growth to $150 million and 2,000 jobs in 10 years. Most of this is domestic, but some is international.

The state's Hawaii Marine Directory lists 1,400 businesses, organizations, and government agencies.

Strong support for these activities comes from the University School of Ocean and Earth Technology, the UH Institutes of Geophysics (oceanography) and Marine Biology (aquaculture), and the Hawaii Undersea Research Laboratory (HURL). An eight-story Pacific Ocean Science and Tech-
The Natural Energy Laboratory of Hawaii has developed into the world’s foremost laboratory and test facility in ocean thermal energy conversion (OTEC) and cold-water aquaculture. It pumps pure, deep, cold, nutrient-rich seawater ashore as the basis for its projects, some of which have international participation.

The Hawaii Natural Energy Institute (HNEI), a research unit of the University of Hawaii, undertakes and coordinates research and development of Hawaii’s renewable energy and ocean resources: solar radiation, geothermal heat and fluids, warm surface and deep cold ocean water, tradewinds, biomass, and other indigenous options plus ocean resource technology.

The Pacific International Center for High Technology Research helps support HNEI’s programs. PICHTR’s funds include an annual $1 million from Japan focused on extending training to the Pacific Islands. It is using Maui Electric Co. as a “model utility” to help Pacific Islanders adapt to alternative energy uses. PICHTR is hopeful of a breakthrough that will make ocean thermal energy conversion commercially attractive with Hawaii holding the patents for it.
Electronics

VeriFone, Inc., a Hawaii-born company, has expanded worldwide and become a leading example of a distance-insensitive company. It now does engineering and software development at Mililani Technology Park; does product testing at Laupahoehoe (a sugar plantation town on the Big Island, where one of its engineers prefers to live); manufactures on Taiwan; and has its corporate offices and service facilities in California. Regional offices outside the United States are in Sydney, Melbourne, and Hong Kong. Its products—which it characterizes as “electronic tools”—are sold in the United States, Canada, South America, Australia, and Asia.

Intelect Inc. is another internationally oriented firm based at Mililani.

Linguatron (US) Ltd. plans to employ 15 people in an assembly plant for an innovative typewriter keyboard for the Chinese, Japanese, and Korean languages.

Motorola Communications International bases its Pacific operations in Hawaii. Other electronic companies operating in Hawaii often have similar worldwide connections. They include Adtech, Control Data, Digital, GEAC Computers, General Dynamics, Honolulu Data Entry Project (HDEP), Kuau Technology, Science Applications International Corp. (SAIC), Tandem Computers, Tektronics, Texas Instruments, The Consultants Consortium (TCC), and WESTEC Services.

“Strategic Alliances for Software Development Between U.S. and Japanese Firms” will be the subject of a state-sponsored conference November 13–15, 1990.

Consideration is being given to Pohakuloa on the Big Island as an electronic-warfare training ground.

Space

The Hawaii Space Authority hopes to develop a nonmilitary space launch facility near South Point on the Big Island that will attract international customers, particularly from Japan.

Hawaii already is in space activities with a Maui satellite tracking station atop Haleakala and the U.S. Pacific Missile Range air-sea-land test facility at Barking Sands, Kauai, as well as the DUMAND project mentioned under oceanography.
The Planetary Geosciences Division of the Hawaii Institute of Geophysics at UH operates the NASA Pacific Regional Data Center.

Based at Mililani park are SETS, Inc., and Pacific Space Center. SETS builds sensing devices for land, sea, and air use. Other commercial companies interested in space are Avco Research Laboratory–Textron, Grumman Corporation Development, and some of the electronics companies mentioned earlier.

* * *

Communications, agriculture, and aquaculture are other fields with strong high-tech participation. Communications companies are covered in chapter 3. Agriculture and aquaculture companies are covered in chapter 7.
Hawaii as a Center for Food Research and Production for Export

ESTIMATE: Income—$50 million; Jobs—1,700

THANKS largely to its sugar and pineapple industries, Hawaii has become one of the world’s leading centers for agricultural research and advanced agricultural practices.

Though sugar and pineapple have declined sharply in relative economic importance since World War II, the research tradition carries on and has branched out to diversified agriculture and aquaculture.

Agriculture

Hawaii’s biggest agricultural crop, sugar, is marketed domestically.

For pineapple, our second crop, foreign trade zone figures show canned exports of $19.1 million, or 10 percent of packs valued at $196.2 million. Most fresh pineapples go to domestic markets except for those carried out by tourists to Japan and elsewhere.

Peak cannery employment in the foreign trade zones for Dole and Maui Pineapple is reported at 3,321. With 10 percent of production going overseas (mostly to Canada and Europe), that suggests some 330 cannery jobs created by international markets at peak periods. The full-time equivalent is estimated at 60 percent of this, or 200. With field labor added, pineapple-industry employment to serve non-U.S. markets approximates 400 jobs created directly. Additional jobs are created indirectly for supplies and the like.

Farm price sales income for export of other Hawaii farm products is estimated by the State Department of Agriculture at:

Papayas $9.4 million
Anthuriums $3.6 million
Macadamia nuts $4.5 million

These products go primarily to Japan with some to Europe. An arbitrary estimate based on this income of $17.5 million is 700 direct and indirect.

Guava puree, Kona coffee, gourmet lettuce, orchids, ornamentals such as protea, and foliage also are exported internationally. Firm income and job data were not obtained. An arbitrary estimate is made here of $3 million in sales and 120 directly and indirectly created jobs.

Most other crops grown in Hawaii are sold almost entirely to domestic markets.

A "wild card" is marijuana. Some officials estimate this illegal crop at more than $10 billion in street value, though farm value would be much less. How much goes overseas is not known.

The College of Tropical Agriculture and Human Resources (CTAHR) at the University of Hawaii is a world leader in tropical agricultural research with outreach throughout the Pacific Basin and Asia.

More than 50 people are engaged by the college on projects funded by a variety of federal and international grants. Projects include the establishment of benchmark sites for agrotechnology transfer, the enrichment of soils through the nitrogen fixation of certain legumes, collaborative soil management, South Pacific and American Pacific agricultural development, forestry and fuelwood research, and training.

More than 100 individuals a year from overseas are hosted in short-course and nondegree training programs.

CTAHR also undertakes high-tech research involving genetic engineering in plants, use of monoclonal antibodies to detect economically important plant pathogens, microbiological control of soil-borne pathogens, and computer-based systems to aid in dealing with papaya disease, nutrition, and pest problems.
Export of Hawaiian aquaculture products is limited in scope but believed to have a significant future, particularly in the Japanese market.

More than 50 farms produce 20 or more varieties of aquatic plants and animals. The field has experienced numerous business failures but has continued to grow. Hawaii’s combined 1988 crop, estimated at $5.5 million, was absorbed almost entirely in the domestic market.

But this will change if expectations are realized for the Natural Energy Laboratory of Hawaii and the adjoining Hawaii Ocean Science Technology Park at Keahole on the Big Island. It is visualized that activities nurtured at NELH will “graduate” to HOST Park as they become commercially viable.

By pumping up cool water from 2,000 feet below the ocean surface the NELH facility makes it possible to raise both warm- and cold-water sea products in Hawaii and often to obtain more rapid growth rates for them than in other production areas.

Ocean Farms of Hawaii, based at NELH, is producing abalone, kelp, Chinook and Coho (Pacific) salmon, sea urchins, and Belon oysters. Cyanotech Corporation is using the facility to produce commercial algae for protein health food supplements and other uses. Both firms see market opportunities in Japan for the future. Twenty-four percent of Ocean Farms is owned by Okabe Corporation. Cosmo Oil Co. of Tokyo will market Cyanotech products in Asia.

Royal Hawaiian Sea Farms with Takaokaya as a Japanese partner is producing nori and ogi. Uwajima Fisheries is targeting flounder for the Japanese market.

Hawaiian Cultured Pearls, a firm with both Japanese and U.S. financial backing, hopes to raise cultured pearls at HOST Park.

The Oceanic Institute at Waimanalo is a private nonprofit research center for applied aquaculture dedicated to commercial development of aquaculture domestically and abroad. It has 110 employees and expects to grow to 300 after 1991 because of federal contracts already awarded. Its focus is both
local and international. Its collaborative projects are worldwide. A $9 million annual budget is seen in its future.

Aquatic Farms, an aquaculture consulting firm, has worked in 25 nations and estimates income to reach $6 million annually.

The Hawaii Aquaculture Company, now being assisted at KAITEC, a public-private support facility for new industries, has been awarded a $1.7 million research contract by the government of El Salvador.

The U.S. Department of Agriculture has designated Hawaii as a regional center to develop aquaculture in Hawaii and American-affiliated Pacific territories. This Center for Tropical and Subtropical Aquaculture (CTSA) is jointly administered by the University of Hawaii and the Oceanic Institute. It is headquartered at Oceanic Institute.

A Pacific Regional Aquaculture Information Service (PRAIS) has been established at CTSA in conjunction with Hamilton Library at the University of Hawaii and the UH Sea Grant College Program.

<table>
<thead>
<tr>
<th><strong>Beef</strong></th>
<th>No foreign market for Hawaiian beef could be identified, but future shipments to Japan are under discussion.</th>
</tr>
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<tbody>
<tr>
<td><strong>Candy</strong></td>
<td>Hawaiian candy firms surveyed by the Department of Business and Economic Development show exports ranging as high as 80 percent of their production to Japan and other Asian markets. Fragmentary data suggest at least 30 jobs and $4 million in revenue in candy production for export.</td>
</tr>
<tr>
<td><strong>Fish</strong></td>
<td>Deep-ocean fish catches produce small export sales to Japan with tuna estimated at $2–$3 million annually and a small lobster export.</td>
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</tbody>
</table>
Flour Hawaiian Flour Mill produces in a foreign trade subzone that lists three full-time and 14 part-time employees. It fills orders for U.S.-affiliated Pacific territories.

* * *

It appears that food research and food production for export could generate in excess of $50 million in income for Hawaii and about 1,700 jobs if each $30,000 is seen as creating a job directly or indirectly.
Hawaii as a Center for Other Tangible Product Production for Export

ESTIMATE: Income—$15 million; Jobs—600

High technology, agriculture, and aquaculture—the focus of the two preceding chapters—account for the bulk of Hawaii's tangible exports. There are at least five other areas of significant export activity or export potential, however. These are discussed in this chapter.

Film Industry

Japanese firms are the principal foreign film/video producers in Hawaii for on-location work. Crews have also been sent from Canada, France, West Germany, and New Zealand. These groups customarily spend half their budgets hiring local actors and technical labor with the rest going to equipment rentals, lodging, and the like.

The Film Industry Branch of the State Department of Business and Economic Development estimates foreign production costs at $8 million in 1988 with 1989 likely to be in the $11 million range. Jobs created directly by foreign film work are believed to exceed the equivalent of 150 full-time jobs. It is assumed here that at least as many more are created by support needs.

Garments

Hawaii's garment industry is volatile, depending on fashion's favor for print garments with a Hawaiian flavor. Recently two firms, Surfline and Paradise Found, have tapped a significant export market in Europe. The most recent industry-wide figures are for 1985. They show $140 million in wholesale sales volume and 4,000 jobs. Recently there has been a trend toward more cottage-industry work at home, but the State Department of Business and Economic Development believes the 1985 figures reasonably reflect 1989 as well. The DBED
estimates that 5 percent of the market is for export. That implies $7 million in export sales and 200 jobs.

**Petroleum**

Two petroleum refineries are located at Campbell Industrial Park. The Chevron Hawaii Refinery produces almost entirely for the domestic market.

Hawaii Independent Refinery, owned by PRI, supplies jet fuel to overseas aircraft. PRI estimates 40 jobs attributable to international operations, including those in marketing operations at its downtown Honolulu headquarters.

**Ocean Mining**

Rich minerals exist on the Pacific ocean floor and in the ocean crust. Proposals to mine these from Hawaii were shelved some years ago for economic reasons. New technology and new research are prompting a reinvestigation of the economic potential here.

**Coral Products**

Maui Divers estimates that 30 of its 190 employees help it supply a $1 million annual export market for manufactured coral products.

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At least $15 million and 600 jobs appears to be a conservative estimate for this chapter.
9 Hawaii as a Pacific Center for Diplomatic and Government Activities

ESTIMATE: Income—$240 million; Jobs—8,000

HAWAII has a significant diplomatic and government base for becoming "The Geneva of the Pacific." If it can become more widely recognized as an East-West bridge as well as a resort center, the numbers in this chapter and in chapter 10 could increase markedly.

<table>
<thead>
<tr>
<th>Consular and Overseas Government Offices</th>
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</thead>
<tbody>
<tr>
<td>Full-time consulates are maintained in Hawaii by Australia, France, Japan, South Korea, and the Philippines. In addition, Taiwan is represented through its Coordination Council for North American Affairs. These offices have an estimated total of 70 employees.</td>
</tr>
<tr>
<td>Honorary consuls represent about 30 additional nations on a part-time basis.</td>
</tr>
<tr>
<td>There are also 40 international &quot;sister&quot; relations with foreign counterparts by the State of Hawaii and the four counties. There are 12 links with Japan, 7 with the Philippines, 5 with Portugal, 3 each with Australia, the People's Republic of China, South Korea, and Taiwan, and 1 each with England, France, India, and Spain. These lead to periodic exchanges of visits.</td>
</tr>
<tr>
<td>Pacific Island areas with offices in Honolulu include American Samoa, Western Samoa and Tonga (joint), the Republic of the Marshall Islands, the Commonwealth of the Northern Marianas, the Federated States of Micronesia, and Palau.</td>
</tr>
<tr>
<td>A jointly supported office, the Pacific Basin Development Council, is directed by the governors of the American-flag Pacific Islands (AFPI)—Hawaii, Guam, the Northern Marianas, and American Samoa—to coordinate their ac-</td>
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</tbody>
</table>
tivities. It is, in effect, an extension of the U.S. territorial and state governments in the Pacific.

The Pacific-Asian Congress of Municipalities (PACOM), now operating out of the Honolulu mayor's office, hopes to set up a separate office with a paid staff in the city's proposed Pacific Nations Center.

Estimated jobs—90 plus.

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<tr>
<th>U.S. Government Offices</th>
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<tbody>
<tr>
<td>International services and services to the U.S.-affiliated territories in the Pacific are provided from the following offices and from most other federal offices situated in Hawaii.</td>
</tr>
<tr>
<td>• State Department Reception Center;</td>
</tr>
<tr>
<td>• Immigration Service;</td>
</tr>
<tr>
<td>• Customs;</td>
</tr>
<tr>
<td>• Public Health Service;</td>
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<tr>
<td>• Agriculture Department;</td>
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<tr>
<td>• Post Office—International Services;</td>
</tr>
<tr>
<td>• Commerce Department—International Affairs Branch;</td>
</tr>
<tr>
<td>• Western Pacific Regional Fisheries Management Council;</td>
</tr>
<tr>
<td>• National Marine Fisheries Western Program Office;</td>
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<tr>
<td>• Pacific Marine Environmental Laboratory;</td>
</tr>
<tr>
<td>• U.S. Information Agency—Pacific Islands Program Office;</td>
</tr>
<tr>
<td>• National Weather Service;</td>
</tr>
<tr>
<td>• Pacific Tsunami Warning Center.</td>
</tr>
</tbody>
</table>

Jobs are estimated at about 450, including about 200 each in Immigration and Customs and 15 in international postal services.
Hawaii is the central military command headquarters for the entire Pacific area from the West Coast to the Indian Ocean and from the North Pole to the South Pole.

Following are key employment figures:

- Combined Pacific Command at Camp Smith—574 military personnel, 115 civilian employees;
- Army Western Command (soon to be called Army Pacific Command)—1,319 military, 2,206 civilians;
- Army Engineering Command (administering Pacific-area construction programs)—15 military, 632 civilians;
- Pacific Fleet Headquarters—625 military, 119 civilians;
- Naval Engineering Command (administering Pacific-area construction programs)—10 military, 408 civilians;
- Pacific Air Force Command—834 military, 26 civilians;
- Fleet Marine Force Pacific Headquarters—258 military, 24 civilians;
- Coast Guard District Headquarters—155 military, 58 civilians.

Excluded from the above figures are personnel of all services based in Hawaii for training and duty not involved in Pacific-area administration. Total Pacific-area command jobs are 3,790 military and 3,588 civilians, totaling 7,378.

In addition, annual joint international military exercises known as RIMPAC and PACEX bring large numbers of foreign servicemen to Hawaii on short visits. It was estimated that 30,000 personnel in such units, including American personnel, spent $18 million in Hawaii in 1988.

Average annual income of $30,000 was used to estimate that the approximately 8,000 jobs outlined in this chapter create an income to the state of at least $240 million.
Hawaii as a Pacific Center for Business, Administrative, Marketing, and Consulting Services

ESTIMATE: Income—$78 million; Jobs—More than 2,600

The diversity of private international activities based in Hawaii is more than is generally recognized. Eight categories in this chapter give at least an overview of what exists and of expansion opportunities for the future.

**Retailing, Wholesaling, and Marketing**

Duty Free Shoppers, a worldwide organization with annual business volume of $2.5 billion, maintains an international headquarters in Honolulu. Through its Hawaii stores, it has sales of more than $600 million and employs 1,500 people. For its concession at Honolulu International Airport, it is committed to pay $1.15 billion over five years to support the state airport system.

Duty Free Shoppers is essentially tourist-oriented. Allotting an arbitrary 10 percent of its activity to non-tourist travelers suggests $60 million in non-tourist sales and 150 jobs.

The Army and Air Force Exchange System Pacific (AAFESP), headquartered on Ala Moana Boulevard in Honolulu, is the purchasing and distribution agent for post exchanges of all services throughout the Pacific. Its international operations, as opposed to its Hawaii services, employ 1,241 civilians.

The Hawaii Foreign Trade Zone has subzones at the canneries of Dole and Maui Pineapple, at Hawaiian Flour Mill, at Hawaiian Independent Refinery, and at Mililani Technology Park plus its headquarters and basic facility at Pier 2, Honolulu Harbor. The food and petroleum employment figures are estimated in chapters 7 and 8.

Homer Maxey, the trade zone director, reports the zone's principal headquarters has a staff of 27. In addition, the main
facility at Pier 2 in Honolulu Harbor is used by 385 firms with a full-time equivalent employment of 141.

IBM uses Hawaii as the focal point for its business operations in the Pacific with about 10 persons involved in international operations.

Broken Hill Proprietary of Australia uses PRI (Pacific Resources, Inc.) in Hawaii as its petroleum-marketing arm (see chapter 8).

For many firms, the world is now their market. Thanks to rapid, easy communication, headquarters can be located according to choice. Robert Wo of C. S. Wo Company oversees the half-billion-dollar annual operations of Hong Kong-based Universal Furniture Company from Honolulu.

Servco Pacific administers Pacific Island retailing from Honolulu.

Gray Distributing administers Maytag franchises throughout the Pacific. President Lee Gray comments: "Hawaii is an ideal location to serve as a 'brokerage state' for mainland manufacturers who wish to export but who do not have (1) Experience, (2) Funds or (3) Time, etc. to sell their products in Pacific/Asia markets. This is also true for mainland franchisors."

Total jobs—More than 1,600.

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**Importing**

Importing clearly is an international activity of great significance.

Much of the volume of the Foreign Trade Zones, dealt with elsewhere, can be considered import activity.

Auto and petroleum represent particularly large import figures. Department-store and other buyers go abroad for product purchases and contract negotiations.

Many individuals clearly earn income in importing. International know-how is a significant job qualification.

Total jobs—At least 100, probably higher.
Bank of Hawaii refers to itself as "The Bank of the Pacific." It estimates about 300 jobs in Hawaii involved in support of its extensive branch activities in the Pacific Islands, Tokyo, Hong Kong, Korea, Singapore, Manila, and Nassau. It is Hawaii's largest overseas financial operator.

First Hawaiian Bank has branches on Guam and a liaison office in Tokyo.

The Bank of Tokyo and Philippine National Bank have offices in Honolulu to handle international transactions. So does Citibank International of the United States.

Deak International estimates that more than US$2 million in yen (in cash) is converted each week in Honolulu through retail trade transactions.

Stock brokerage firms with Asia-Pacific involvements from their Honolulu offices include Merrill-Lynch, Prudential-Bache, Dean Witter, and Nomura Securities.

Still pending are efforts by the Hawaii business community to establish a stock exchange in Hawaii to fill the four-hour time gap between the close of mainland U.S. exchanges and the opening of the Tokyo exchange. The plan is to offer other international financial exchange services (options, futures, bonds, currencies) as well in a Honolulu "Financial Mall."

Honolulu Federal Savings & Loan Association and First Interstate Bank have been acquired as part of a Pacific-wide financial network assembled by a group headed by William Simon, the former secretary of the treasury.

New Japanese owners may use International Savings & Loan Association, Honolulu, as a launching pad to buy thrift institutions on the U.S. mainland.

Prudential Insurance Company's Hawaii office directs Prudential operations in Guam, South Korea, the Philippines, and other Pacific Rim markets.

Grand Pacific Life Insurance Company operates Pacific-wide from Honolulu.
Several accounting firms, including Deloitte & Touche and KPMG Peat, Marwick, administer small Pacific operations from Honolulu.

A new state law makes it attractive for domestic and international firms to base "captive" insurance companies in Hawaii to allow commercial and institutional organizations to form wholly owned subsidiaries to insure the risks of parent corporations. Ten firms have registered, but employment so far has been minimal.

Total jobs—More than 325.

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**Legal and Real Estate Services**

Heavy foreign investment in Hawaii has created a demand for go-betweens.

According to Gregory G. Y. Pai, economic affairs assistant to the governor, total foreign investment in Hawaii stood at $4.7 billion at the end of 1987—$3.7 billion from Japan, $232 million from Hong Kong, $194 million from the United Kingdom, $157 million from Canada, and $168 million from Australia.

The visitor industry is now heavily foreign-owned. There are substantial foreign investments also in office space, shopping centers, and condominium developments. A recent phenomenon has been Japanese investment in residential properties in affluent neighborhoods.

Foreign capital has thus been placed in the hands of former owners for reinvestment as they choose.

By one estimate, up to 200 local real estate brokers (out of nearly 10,000) have been dealing part-time with foreign buyers. These sales also create a demand for escrow and other services. Real estate firms actively involved with foreign customers include Bradley Properties, Dolman Associates, Locations Inc., and numerous others. Some have established overseas offices.

The Real Estate Center of the University of Hawaii College of Business Administration is a clearing house for information in this area. It maintains statewide real estate data with an emphasis on international transactions.
The number of persons involved in providing legal services for international transactions has been estimated at 90 or more. Law firms actively involved include: Cades, Schutte, Fleming, and Wright; Carlsmith, Wichman, Case, Mukai, and Ichiki; Damon, Key, Bocken, Kupchak; Fujiyama, Duffy, and Fujiyama; Goodsill, Anderson, Quinn, and Stifel; Ikizaki, Devens, Lo, Youth, and Nakano; Kobayashi, Watanabe, and Sugita; and McCorriston, Miho, and Miller.

TE, International Law is a high-tech firm whose specialties include legal services between trading nations and corporations.

The University of Hawaii Law School stresses international programs and has Pacific-wide affiliations. It is the home of the International Law of the Sea Institute. Future involvement of Hawaii in the newly internationally recognized 200-mile Exclusive Economic Zones (EEZs) bordering coastal waters promises to raise international problems regarding fishing, mining, and environmental protection. The Hawaii EEZ is almost as big as the land area of Alaska. It makes Hawaii the second largest state in area in the United States.

A Hawaii Center for International Commercial Dispute Resolution has been created to promote Hawaii as a Pacific center for conflict resolution with special international arbitration and mediation services made available.

Estimated jobs—More than 300.

Architectural, Engineering, Planning, Consulting, and Construction Services

Hawaiian architectural firms have developed a Pacific-wide reputation that has caused them to be engaged in numerous projects around the Pacific Basin and in Europe. Wimberly, Allison, Tong, and Goo (WAT&G) estimates 30 of its 100 Honolulu staff members are engaged in international work. CDS International estimates 10 local jobs created to serve international clients. Architects Hawaii estimates five jobs created locally plus a much larger staff in its Hong Kong office. Media Five and Group 70 are other international participants.

Belt, Collins and Associates supplies engineering, planning, landscape architecture, and golf course design services with a staff of 130 in Hawaii and 50 overseas. It estimates 10 Hawaii
employees in overseas work. M&E Pacific, William A. Brewer and Associates, and Parsons Hawaii also have Pacific outreach.

Pacific Construction and Dillingham Construction Pacific oversee some Pacific activities from Hawaii, with Dillingham focusing on “the American Pacific.”

Hemmeter Corporation has overseas projects in the Caribbean and is seeking opportunities in Asia.

A future trend—patterned on Japan—may be for the same company to provide a client with both engineering and construction services.

Omnitrak International and its sister company, PACMAR, have branch offices in Asia for their consultation and marketing services to Asian and U.S. clients, private and public.

Former Governor George Ariyoshi specializes in playing an intermediary role between foreign and U.S. clients interested in seeking investment opportunities.

EAS Associates, organized by two former National Security Council staff members, helps U.S. and foreign clients interested in doing business in East Asia, including the U.S.S.R. and China.

James Gary, chairman emeritus of Pacific Resources Inc., consults internationally, as does Mary Bitterman, former director of the Voice of America.

Many University of Hawaii and East-West Center faculty members play consulting roles.

Estimated jobs—Approximately 150.

<table>
<thead>
<tr>
<th>International News and Information Gathering and Distribution</th>
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<tbody>
<tr>
<td>Associated Press uses Hawaii as a base for covering Pacific Island activities. Yomiuri Shimbun of Japan and Korea Times and Han’guk Ilbo of Korea maintain Honolulu bureaus. NHK-Japan Broadcasting Corporation has a Honolulu representative. The University of Hawaii Press is a worldwide book distributor representing 38 North American universities and a number of firms in the Pacific-Asia area. Its publications for the UH Center for Pacific Island Studies are considered world</td>
</tr>
</tbody>
</table>

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leaders in this field. *East-West Magazine* has a Pacific-wide circulation.

Public relations services for international clients are offered by Hill & Knowlton/Communications Pacific, DDB Needham Worldwide, and other firms.

Hawaii's time zone facilitates its use as a telecommunications center at times when other areas are in "off hours."

Estimated jobs—25.

<table>
<thead>
<tr>
<th>Resort Business</th>
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<tbody>
<tr>
<td>Sheraton Hotels in Hawaii–Japan, Colony Hotels and Resorts, Aston Hotels and Resorts, Pan Pacific Hotels, and Newman’s South Pacific Vacations maintain regional headquarters in Honolulu. Colony’s Pacific division reaches out to India and Thailand.</td>
</tr>
</tbody>
</table>

Pacific Ventures licenses Studebaker’s restaurants throughout the Pacific.

The visitor flow going to and from Hawaii to the South and Western Pacific approximates two million each way annually. If 10 percent of this is non-tourist, it obviously generates considerable travel-agency business, but no figures are available.

Estimated jobs—65.

<table>
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<tr>
<th>Eleemosynary Institutions</th>
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<tbody>
<tr>
<td>The American Red Cross administers Pacific programs from Honolulu. The Salvation Army oversees its Marshall Islands program from Honolulu. The Boy Scouts of America oversee Micronesia and American Samoa from here.</td>
</tr>
</tbody>
</table>

The Episcopal bishop in Honolulu is responsible for Guam.

Nichiren Shoshu of America maintains an exchange program with Japan. In 1975 and 1985 it hosted major international conventions in Hawaii. The separate Nichiren Mission of Hawaii trains priests from Japan in English.

The Church of World Messianity has annual visitor exchanges with Japan.
Some Honolulu-based church activities in the Pacific have been contracting rather than expanding as more local control is established.

Estimated jobs—A full-time equivalent of 10.

* * *

Total jobs covered in this chapter probably exceed 2,600. At $30,000 a job, this implies income of at least $78 million.
ESTIMATE: Income—$20 million; Jobs—800

THE State Department of Business and Economic Development calls Hawaii "Where the world wants to compete." International sports are a significant growth area in the Hawaii economy with annual competitions in more than a dozen fields already drawing foreign participants.

Hawaii’s time zone and reliable telecommunications make it possible for most of the world to see live broadcasts of daytime events. Hawaii’s unique natural/cultural backdrop for these events attracts both spectators and viewers.

Here are highlights:

GOLF—Japanese interest in golf has resulted in a shortage of affordable golf courses in Hawaii in spite of 56 existing courses statewide. If plans materialize, the number of courses will approach 100 before the year 2000. With development costs of $100,000 to $500,000 per hole, future construction will produce substantial employment.

International competitions in golf include the Hawaiian Open, the Isuzu Kapalua International Golf Tournament, and the Women’s Kemper Open.

YACHTING—The Kenwood Cup is the featured yacht race of the Hawaii International Open Racing series. It is one of the top four world major yachting events each year. The richest professional yacht-racing series, the Ziploc Ultimate Yacht Race, is committed to regattas in Hawaiian waters through 1997. Hawaii also offers an attractive America’s Cup training ground because of our varied wind conditions and available harbor facilities.

RACING—The Honolulu Marathon annually draws about 5,000 Japanese participants. The Big Island is the site of the annual Bud Light Ironman Triathlon, with participation from more than 40 foreign countries, and the Ultraman Endurance
Challenge, sponsored by Federal Express. These two events have been estimated to contribute more than $17 million in economic benefits to the Big Island annually. The Big Island also has established itself as the unofficial training island of the Pacific.

WINDSURFING—Maui as become “the windsurfing capital of the world.” The Aloha Classic Boardsailing Championship is the last event on the Professional Boardsailing Association world tour. The Ocean Pacific Wave Riding Classic is another event.

Maui’s design shops produce surfboards, colorful sails, and related equipment. Business volume is estimated at more than $14 million a year with more than 500 employees, not including support jobs in transportation, lodging, and so forth.

SURFING—ASP Championship Tour surfing includes the Triple Crown of Surfing competition on Oahu’s famed North Shore. Another competition is the Gotcha Pro.

SKIBOARDING—The World Skiboarding Championships are scheduled for Kauai in February 1990.

OLYMPIC-STYLE COMPETITIONS—The Hawaii Pacific Games plans its inaugural for June 6–16, 1991, with repetitions every two years thereafter. About 2,000 of the best athletes of the Pacific Basin will be invited for multisport competitions. Sponsors estimate the games will generate total revenues of $88 million to $170 million.

The World Corporate Games, strictly for amateurs, will have competitions on three islands in October 1990.

BILLFISHING—The Hawaiian Billfishing Tournament draws international teams to Kona each August and helps secure Hawaii’s place in one of the world’s leading participatory sports.

BASEBALL—The Daiei Hawks, a Japanese professional baseball team, train annually on Kauai. Youth baseball teams from the Asian Pacific Rim hold tournaments on the Big Island in June and July. On Oahu, efforts are being made, with state support, to develop a multifield baseball training complex on the Ewa Plain to further capitalize on the interest of Japanese professional baseball teams in Hawaii.
FOOTBALL—Japanese football interest may mean more international attention for Hawaii's three annual football bowls—the Pro Bowl, Aloha Bowl, and Hula Bowl.

MOTOR RACING—Hawaiian Super Prix 1 is planned as a 250-mile racing event at Aloha Stadium March 10, 1991, with a winner's purse of $1 million. Motorsports fans are seeking construction of a permanent facility to further develop this sport.

CANOE RACING—The annual Molokai-to-Oahu outrigger race now draws South Pacific participants from Tahiti.

KAYAKING—International competitors are expected for the Bankoh Kayak Challenge on Molokai in May 1990.

TENNIS—The Nissan Hawaii Tennis Circuit is an annual event.

VOLLEYBALL—The Pro Beach Volleyball event will bring international competitors to Oahu in April 1990.

POLO—Competitions on Oahu and Maui draw teams from Great Britain, Mexico, and other countries.

OTHER SPORTS—Basketball, softball, and bicycling are among domestic U.S. competitions likely to attract future international participation. The University of Hawaii occasionally hosts international teams in a variety of sports.

* * *

No reliable gross totals are available on the income/job impact of international sports in Hawaii. The contribution of golf alone to income and employment runs into large figures because of Japanese interest that often helps bring business meetings to Hawaii that could be held elsewhere.

An armchair estimate of the non-tourist international economic impact of the above activities is 800 jobs and $20 million in payroll, based on an assumed $25,000 per job.
Hawaii as a Pacific Health and Fitness Center

ESTIMATE: Income—$7 million; Jobs—280

STATE Health Director John Lewin wants to make Hawaii "The Health Capital of the World." Hawaii is an attractive place for health and fitness programs for a number of reasons:

- Hawaii residents have a longer life expectancy than those of any other U.S. state.
- Hawaii has the fewest fatalities per capita in the United States due to cardio-vascular diseases, cancer, and emphysema. Also the fewest deaths related to smoking.
- Hawaii's resort facilities make it an attractive place to carry out health/fitness regimes.
- Hawaii's mixed ethnicity makes it a "living laboratory" for comparative medical research.
- Medical facilities and staffs in the Islands are first rate.

A number of resorts, including the Hyatt Waikoloa on the Big Island, have established well-equipped health/fitness spas. The Hyatt Regency Coolum in Queensland, Australia, suggests a trend that may catch on here. Designed by a Honolulu firm (WAT&G), it is solely an executive retreat for health management.

Retirement centers for foreign nationals, most notably Japanese, have been identified as another future option for Hawaii.

The UH School of Medicine is the base for a MEDEX program to train lay people in Third World nations to assist doctors and thus expand their areas of coverage. Over a period of
16 years, MEDEX has received more than $30 million in support from the World Health Organization and the U.S. Agency for International Development. "How To—" books by MEDEX are believed to be in use in 82 countries.

The Governor's Pacific Health Promotion and Development Center works with America Samoa, the Commonwealth of the Northern Mariana Islands, the Federated States of Micronesia, Guam, and the Republics of the Marshall Islands and Palau to promote better health practices in those areas. The Hawaii legislature has authorized a volunteer Aloha Medical Mission Corps to work with it.

The UH School of Public Health is the only U.S. school chartered by the World Health Organization as a collaborating center for leadership development for health for all.

The UH School of Public Health is home base for the Asia-Pacific Academic Consortium for Public Health, involving 14 nations.

Overall, the School of Public Health receives about $3.5 million of its $5 million annual budget from out of state.

Multidisciplinary medical research, some of it international, is conducted at the Pacific Biomedical Research Center associated with the UH School of Medicine.

International air ambulance service for the Pacific region is offered by Hawaii Air Ambulance working in conjunction with Reedjet International.

Among the Hawaii medical centers serving Pacific-area patients are Tripler Army Medical Center, the Rehabilitation Hospital of the Pacific, Queen’s Medical Center, and Kapiolani Medical Center for Women and Children.

In 1964 Hawaii became the base for collaborative heart disease studies of Japanese ethnic individuals in Hiroshima, Nagasaki, Honolulu, and San Francisco. The NI-HON-SAN study established dietary links to heart disease. Outgrowths of this are the Honolulu Heart Program and the Japan-Hawaii Cancer Study, both with their research headquarters at Kuakini Medical Center. An osteoporosis study has since been added. Research grants for staffs of 19 exceed $500,000.
annually. Results are published and reported to meetings in both Hawaii and Japan.

The State Health Department sees pharmaceutical, genetic, and biotechnology research as an industry that will benefit Hawaii and is environmentally sound.

* * *

Total jobs generated by these activities are estimated at 280. Payroll is estimated at $7 million, based on assumed average pay of $25,000 per job.
13 Hawaii as an International Arts and Culture Center

ESTIMATE: Income and jobs (aside from UH Summer Session counted in chapter 5) are estimated at $750,000 and 30.

In Hawaii one can find the culture of virtually every ethnic strain in the Pacific—Polynesian, Filipino, Japanese, Chinese, Korean, Okinawan, Thai, Vietnamese, and Cambodian—as well as old Yankee stock and vital enclaves of Portuguese, Mexican, and Puerto Rican culture.

The State of Hawaii gives a greater per capita subsidy to culture and the arts than any other state.

While much of this is domestic and tourist-related, there are significant non-tourist international aspects that Hawaii can build on and promote.

The University of Hawaii Summer Session (already mentioned in chapter 5) is an active contributor in this area and can be an even greater one. It can become “The Chautauqua of the Pacific,” following in the footsteps of the famous New York state community that every summer hosts live-in educational-cultural weeks at which ordinary citizens mingle with some of the great people of the age.

For more than 100 years, Chautauqua has combined recreational-sports opportunities on the shores of Lake Chautauqua with cultural-educational opportunities. Chautauqua and a counterpart Russian retreat were the sites of informal U.S.-Russian dialogues that paved the way for the first Reagan-Gorbachev summit.

The Honolulu Academy of Arts has an Asian collection rated among the 20 best in the world that draws international visitors, researchers, and students for training. A substantial portion of its grants from the National Endowment for the Arts and the Institute of Museum Services reflects its international role. About 10 of its 80 staff members owe their jobs to
international activity. Director George Ellis sees significant international expansion potential.

The Bishop Museum is the world's primary center for study of the Polynesian culture.

The state's significant cultural and museum attractions also include the Polynesian Cultural Center, the Hawaii International Film Festival, religious temples reflecting the structures of Asia, the Punchbowl National Memorial Cemetery of the Pacific, and the USS Arizona Memorial and Museum.

The State of Hawaii has a full-time arts, crafts, and fashion design coordinator.

The School of Hawaiian, Asian and Pacific Studies at the University of Hawaii can be a rich cultural resource. Its Center for Korean Studies replicates a Korean palace. A Hawaiian village and garden are planned.

The University of Hawaii Music Department is a world leader in ethnomusicology.

Both the Japanese Cultural Center of Hawaii and the Okinawan Cultural Center are in the advanced planning stages with substantial private support.

The 1988 Governor's Congress on Hawaii's International Role identified international cultural and artistic interchange as a desired area for greater international development.

* * *

Arts and cultural activities add a significant element to the quality of life of a community that can not be measured solely by their generation of jobs and income.

An armchair estimate is that the activities described above generate 30 jobs and, at an assumed average pay of $30,000, $750,000 in income.
Hawaii and the Pacific Islands

ESTIMATE: None, because activities are included in other chapters.

Even though they are embraced in other chapters, Hawaii's relations with its Pacific Island neighbors seem worthy of singling out for separate consideration as well.

For many Pacific Islanders, Hawaii is the link through which they connect with the U.S. mainland or from which programs of concern to them are administered.

Hawaii's educational institutions—notably the University of Hawaii, the East-West Center, Brigham Young University-Hawaii, and the Bishop Museum—have very strong links with the Islands.

A significant segment of BYU's students comes from the Islands, and its affiliate, the Polynesian Cultural Center, introduces Pacific Island culture to a million visitors a year.

The Center for Pacific Islands Studies at the University of Hawaii is considered the strongest such program in the United States. With its recently launched semiannual *Contemporary Pacific: A Journal of Pacific Island Affairs*, it has reinforced its role as the leading world publisher of Pacific Island studies.

Hawaii Public Radio does a daily Pacific Island news feature.

The U.S. Information Agency has a Honolulu office to deal with Pacific Island affairs.

The Pacific Islands Development Program at the East-West Center regularly convenes Island leaders of some 20 nations at which they set their own priorities for research and development.
In biological and anthropological research, the Bishop Museum is the premiere world institution for the study of Polynesia.

Native people's movements in the Pacific have become linked with the Hawaiian-built *Hokulea*, a replica of the Polynesian sailing craft of centuries ago, touring the Pacific to promote unity.

A number of businesses, including IBM, AT&T, GTE Hawaiian Tel, Servco, and PRI, headquarter Pacific Island operations in Honolulu. A variety of regional sales organizations are Hawaii-based.

U.S. government, U.S. military construction programs, and some health programs affecting the Pacific Islands are administered from Hawaii.

A significant number of Pacific Island territories or nations maintain offices in Honolulu (see chapter 9).

Regional air, sea, and commercial offices also are in Honolulu.

The American-affiliated Pacific Islands (AAPI) are in two categories:

- The American-flag Pacific Islands (AFPI), which include the territories of Guam and American Samoa and the Commonwealth of the Northern Mariana Islands; and
- The freely associated states, which comprise the former U.S. Trust Territory of the Pacific Islands and include the Federated States of Micronesia (Yap, Truk, Kosrae, and Pohnpei) and the Republic of the Marshall Islands. An addition may be the Republic of Palau.

Among the Honolulu-based offices serving these groups are the Pacific Business Center Program at the University of Hawaii, which draws financial support from nine Island entities, and the Pacific Regional Educational Program, which services funding and technical assistance.

The Pacific Business Center Program is an Island data/information source. It also puts interested parties in touch with UH specialists who can assist business development in Hawaii and the AAPI areas.
The AFPI areas coordinate policies and actions through the Honolulu-based Pacific Basin Development Council directed by the governors of Hawaii, American Samoa, Guam, and the Commonwealth of the Northern Marianas.

No separate economic assessment has been attempted for this category because most activities are covered in other chapters. The volume is significant, however, and represents a field in which Hawaii has a natural edge compared to any other U.S. area.
A major gap in this report is the omission of the impact of most non-tourist foreign investments. In any year, a foreign investment increases that year's gross state product.

In addition, wages paid by foreign employers might be counted (but are not here) as international activities.

These could well be the subject of successor studies.

The magnitude of foreign investment is suggested by these estimates from the Real Estate Center at the University of Hawaii:

- Up to late 1989 total foreign investment in Hawaii real estate totaled about $10 billion. Some of these purchases date back more than 50 years. Even purchases made in 1986 have since increased in value by as much as 250 percent. Thus the total value of foreign-held real estate in Hawaii may now be $25 billion to $30 billion.

- This $25-$30 billion compares to an estimated gross value for all property in Hawaii, including government properties, of at least $180 billion to $200 billion and perhaps as high as $450 billion. Foreign investments thus seem to be in the vicinity of 10 percent of the gross value of Hawaii.

- Because foreign investments concentrate in high-cost areas such as the one square mile called Waikiki, the proportion of the state's acreage owned by foreigners is much less, perhaps less than 1 percent, which is about 41,000 acres.

- In 1988 and 1989 about 90 percent of all foreign real estate investment was by Japanese. Prior to that, it was about 70 percent.

A point of significance is that under the U.S. Constitution the 50 states have a right to impose restrictions on foreign investors that they are not permitted to impose on investors from other states, who must be treated equally with local residents.
IN A democracy, very little of widespread significance develops without the consent of the governed. Hawaii has an opportunity in the 1990s to significantly turn its economy toward more non-tourist activities of the types outlined in this report.

Why should our people want to expand in these directions?

One reason is that these activities offer us the opportunity to achieve quality-of-life values already identified as having wide public support—preservation of the aloha spirit, protection of our environment and of our physical and mental health, and wider sharing of opportunity for all.

Another reason is that expansion of these activities can offer us more personal opportunity—a more diversified economy, more middle and high-paying jobs, plus educational, cultural, and recreational stimulation—all without the need of excessive growth since many of our “customers” will be temporary visitors.

A third reason is that we will be filling a need for greater East-West interactions and doing it with our unique assets—our ethnic mix, our cultural empathy with both East and West, our strategic mid-Pacific location and time zone, our superb climate and beauty, and our world-class resort plant.

We have an impediment, however.

The world thinks of us as a resort place, not as a Geneva-type international place, even though Geneva, too, is a resort place. Often we in Hawaii also fail to see our importance as an East-West bridge.

We must “think” both ourselves and the world into recognizing our important East-West potential. In the 1930s we set out in earnest to be recognized as a full-fledged state of the United States, and in the 1950s we decided to cast our lot with large-scale tourism.
We succeeded with both statehood and tourism because these were steps supported by the common will. In the 1990s we can do the same in making Hawaii an internationally recognized East-West bridge.