ACCOUNTING FOR CHANGE: BRINGING INTERDEPENDENCE INTO DEFINING SUSTAINABILITY

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"Sustainability," the key word of international development bodies currently intervening in the restructuring of the Marshall Islands economy, is defined within Western economic conceptualizations. I argue that such characterizations are incomplete: they fail to capture the full nature of the ongoing Marshallese economy by focusing too narrowly on transfers related to the Compact of Free Association and by their partial understanding of Marshallese food systems and easy dichotomies between imported and local foods. The segregation of external interventions by sector further distorts their possible impact. Structural imbalances within the Marshallese and other Pacific nations' economies have been exacerbated by the ways in which earlier monetary transfers have been made and labeled, and by treating subunits of regional economies as if they were separable from the larger unit of which they have for the past century formed a part. To be useful as an analytical construct, sustainability must be defined at local, national, and international levels within the culturally and politically appropriate terms of what it is considered critical to sustain.

In the late 1990s there were multiple international, U.S., and national agencies at work in the Republic of the Marshall Islands (RMI) attempting to restructure its economy. At the international level alone the Asian Development Bank funded a specialist to work for a year to develop the agricultural sector; UNICEF continued its Family Food and Nutrition Program; the Asian Development Bank funded a team (of which I was a member in 1996–1997) to write a National Fisheries Development Plan; and the Asian Development Bank, World Bank, and the United States funded a Policy Advisory Team to restructure the government and the entire monetary econ-

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omy. The scale of intervention is perhaps indicative of the degree to which the Marshallese economy is considered out of control, in Western terms.

In this article I argue that despite what I perceive to be primarily good intentions and high capabilities of the outside experts and an exceptional willingness on the part of the Marshallese people (grassroots as well as many of its leaders) to recapture workable ways of living in their environment, the separate projects are doomed to failure without an integrated reevaluation of the nature of the current Marshallese economy in the U.S. and global economies. "Sustainability," the key word of all these interventions, must simultaneously be redefined on the local, national, and international levels. More important, such definitions must account for the *actual* economy of the Marshall Islands at this time, an economy *not* of an independent entity, but one that over the past century has become progressively intertwined with international forces.

In the late 1800s and early 1900s, the Marshalls redirected its agricultural production toward copra, a world market commodity, progressively substituting imported rice for breadfruit, taro, and arrowroot as the staple starch food. By the 1980s the entire economy and demography of the Marshall Islands were directed toward its international partner, the United States, its resource environment including U.S. transfers paid for the use of its northern atolls for nuclear testing and the continued alienation of most of Kwajalein Atoll for Star Wars missile tests. Political independence aside (and this was a highly debated topic until the entry of the Marshalls into the United Nations in 1991 rendered the point moot), the Marshallese economy is integrally connected with that of the United States.

Lest readers consider the Marshallese misdirected in their focus on the United States, let me briefly reconsider the United States' current and historical impact on the islands. Readers will know of the atomic bombs tested in the northern atolls between 1947 and 1958. The U.S. Congress recently increased from four to seven the number of "atomic atolls" formally recognized by the United States as severely affected by these tests, a number expected to further expand in this nation of twenty-four inhabited atolls and islands. The United States established substantial financial trust funds for the first four islands so designated and is in the process of funding the atolls just added. These islands operate under a subclause (177) of the Compact of Free Association that governs the formal relationship between the United States and the Marshall Islands during the fifteen-year period from 1986 to 2001.

Nuclear testing, however, is still only part of the continuing relationship of the United States and the Marshall Islands covered by the compact. A separate agreement, with a life span of thirty years (which can be terminated

only by mutual agreement even after that time), covers the continuing U.S. use of Kwajalein Atoll as a missile base. The end of the cold war and global rollback of U.S. military forces has not brought a decline in the U.S. use of Kwajalein: the *Marshall Islands Journal* (1997) reported that the 1997 schedule was the heaviest in years. Housing for U.S. contract personnel was overflowing even to Majuro, an hour's flight away.

It is true that the Compact of Free Association between the Marshalls and the United States is now in its final five-year phase-down period of funding (due to terminate in 2001). Substantial governmental investments in fisheries (purchase of long-line fishing boats) and in transportation and tourism development (the Airline of the Marshall Islands, the former Outrigger Hotel) have not brought an increase in the private sector or in income generation for the government; the economy remains heavily imbalanced toward a public sector supported by U.S. transfers. The government has borrowed heavily against future compact payments to fund these and other investments, and the public sector is itself being substantially trimmed to cut operating costs.

However, restructuring the government with regard to the compact and its schedule of payments is only a part of the Marshallese economic picture. The Marshallese economy at this time, and for at least the next fifteen years, relies on substantial inputs from the outside. In addition to declining U.S. compact transfers and federal program aid to the government, there are continuing quarterly payments made to Kwajalein landowners for the use of their lands for missile testing (recently expanded to include some lands on Aur) as well as the nuclear trusts (a constant subject of controversy) that provide funds to certain populations. Returns from distant water fishing nations for fishing rights within the Marshalls' Exclusive Economic Zone are currently low, but large economic transfers labeled as aid have accompanied the payments that Japan and other distant water fishing nations pay for the rights to harvest tuna from the Marshall Islands Exclusive Economic Zone. In addition, international organizations such as the Asian Development Bank are making long-term low-cost loans available to the Marshalls, shifting current inputs toward transfers made on a loan basis rather than the grants that previously characterized most transfers to the Marshalls.

A Demographic View

The degree to which the Marshallese economy has already been restructured around a U.S. core can be demonstrated by a review of its regional demography (Gorenflo and Levin 1994). This restructuring is not recent: an archaeologist noted "a society in more-or-less rapid transition to a social and economic order congruent with its position in the world market economy"

(Dye 1987:9), based on intensive ethnographic description of such transitions beginning in the early nineteenth century. Recent demographic transformations, however, are extreme. The population increased more than sixfold between 1945 and the present, from 9,471 in 1945 (Gorenflo and Levin 1994:105) to an estimated 59,243 in 1997 (OPS 1996:14). Fully 70 percent of the population resides on the two urbanized atolls of Majuro (29,002) and on Ebeye islet within Kwajalein Atoll (12,813) (ibid.:24). In the past the overall population and the size of the Marshallese chiefdoms had been severely limited, most likely primarily by their fragile ecological bases. The coral atolls rise barely above sea level and have small land areas with poor soil, subject to relatively low rainfall. Their agricultural productivity is low, and most atolls supported only their own population with little surplus and frequent periods of famine and food shortage. There were no regional centers supported by surrounding hinterlands.

In stark contrast to traditional regional organization, the entire area currently contains two major centers of population and economic activity. Inhabitants of these centers include thousands of people who have no traditional rights to reside there. The sociocultural foundation for such large-scale regional organization was absent in the traditional Marshall Islands. Even if the basis for a broad redistribution system did exist, the populations concentrated in modern centers have reached levels well in excess of regional support capabilities for any hinterland one cares to define within the Marshall Islands. The centers require substantial support beyond that available locally in order to survive. Such a regional setting could not evolve within a closed system; the basis for this development was provided by other nations, predominantly the United States (Gorenflo and Levin 1994:145–146).

Gorenflo and Levin in their account, unfortunately, move from this perspective of an open regional system based on strong economic links to the United States to considering the Marshalls as a single economic unit. They conclude that the system is therefore unstable, and Gorenflo believes that it is only through a controlled decentralization that the Marshalls could hope to achieve a sustainable, self-reliant system (Gorenflo 1990). Even if decentralization could be achieved, which these authors and I consider doubtful, I argue that sustainability needs to be defined within the larger social and political framework within which the Republic of the Marshall Islands exists. Continued U.S. monetary transfers to the Marshalls are not based on economic principles. Insisting on an economic definition of sustainability belies the continued political and strategic importance of the Marshall Islands to the United States. Regardless of whether compact payments actually cease in 2001, substantial payments will continue to flow into the islands through the Kwajalein missile base and the already established Title 177 trust funds. The Marshallese have literally been banking on it.

Gorenflo and Levin's assumption of the possibility of a return to the outer islands is mirrored in RMI government quarters. Many seem to believe that with 70 percent of the population residing on Majuro and Kwajalein, the outer islands must therefore be depopulated. Thus, as government jobs decline in Majuro, people expect that a number of outer islanders may simply return to their home atolls and thereby reduce population and resource pressures on Majuro and Ebeye. In fact, all atolls and islands have experienced significant population increases between 1958 and 1988 (see Table 1) with the exception of Likiep (owing to the closure of a school) and Ebon (now reversed with the opening of an airstrip). The overall Marshallese population has increased to such a level that one must question the assumption that outer-island resources could support the return of urban dwellers to their home atolls, as these resources have always been fragile, and the series of major typhoons of the early 1990s severely affected food production on most of the atolls.

While the outer islands will experience greater local autonomy and greater responsibility for their populations as the public sector declines, it is not anticipated that the Marshallese people will redistribute themselves back to their pre-1950s homelands even if they are able to. The contractual continuation of the Kwajalein Missile Testing Agreement fifteen years after the term of the present Compact of Free Association in 2001 indicates that Kwajalein will remain a major population center; the concentration of health, education, and other services in Majuro indicate it will retain its importance as well.

The 1994 Multi-Subject Household Survey did indicate a slight trend toward the net return of Marshallese to outer-island communities. Whereas on a lifetime basis there was a net increase of 7,506 who migrated from rural to urban communities as compared to 3,884 moving from urban to rural, within the last year the respective numbers were 441 rural to urban compared to 531 urban to rural, and within the past five years 717 rural to urban compared to 726 urban to rural. These are the net figures; the Marshallese are highly mobile, and the numbers of individuals and families moving would be much higher. It is important to note that in each case half the migrants are young dependents moving with household members (OPS 1996: tables 22–25).

There are significant differences between rural and urban populations in population structures and population densities. In 1988 the center of Majuro Atoll experienced a density of 28,724 persons per square mile; Ebeye had 59,457 persons per square mile. Outer-island populations are skewed toward the young (with a median population aged twelve years) and the elderly, as many of working age have moved to the population centers. This imbalance can be seen by reviewing the dependency ratios shown for 1988

TABLE 1. **Population Statistics**

Atoll/Island	1958	1973	1988	1958–1988 Change	Median Age, 1988	Dependency Ratio	Percentage under 18 years	No. of Households
Ailinglaplap	1,288	1,100	1,715	427	11	1.76	64.8	200
Ailuk	419	335	488	69	12	1.60	60.5	72
Arno	1,037	1,120	1,656	619	11	1.64	62.6	188
Aur	241	300	438	197	13	1.35	60.5	60
Bikini/Kili	267	435	612	345	14	1.18	53.8	84
Ebon	819	740	741	−78	12	1.79	63.2	90
Enewetak/U	172	342	715	543	13	1.21	56.1	103
Jabat	—	70	112	112	11	1.55	60.7	17
Jaluit	1,098	925	1,709	611	13	1.36	63.1	203
Kwajalein	1,284	5,469	9,311	8,027	14	1.14	56.3	950
Lae	165	154	319	154	11	1.51	62.4	25
Lib	44	98	115	71	13	1.30	56.5	16
Likiep	636	406	482	−154	13	1.50	57.7	71
Majuro	3,415	10,290	19,664	16,249	16	0.99	53.9	2,228
Maloelap	454	432	796	342	12	1.33	59.9	103
Mejit	346	271	445	99	12	1.37	56.9	48
Mili	412	538	854	442	12	1.52	61.7	98
Namodrik	523	431	814	291	11	1.77	64.9	96
Namu	482	493	801	319	12	1.36	60.8	86
Rongelap/M[a]	264	165	—	—	—	—	—	—
Ujae	167	209	448	281	11	1.67	63.8	37
Utirik	198	217	409	211	13	1.48	57.5	53
Wotho	71	61	90	19	13	1.37	56.7	16
Wotje	361	425	646	285	12	1.45	61.8	79
Total	14,163	25,045	43,380	29,217	14	1.17	56.9	4,923

Source: Based on OPS 1989, 1993; Ministry of Interior and Outer Island Affairs 1991.

[a] The people of Rongelap were evacuated, mainly to Mejatto, Kwajalein Atoll.

in Table 1 (based on OPS 1993: table 2.8), which range from low rates of 0.99 and 1.14 for Majuro and Kwajalein, respectively, to the high rates of 1.79, 1.77, and 1.76 for Ebon, Namorik, and Ailinglaplap, respectively. Simply stated, the ratio of dependent children and adults to working-age adults is relatively even on Majuro and Kwajalein, but on the other atolls the rates reach the high on Ebon of nearly 1.8 dependents to each working adult. Another way of thinking about the high dependency ratios is in terms of flows of food and money that family members frequently send from the urban centers to assist kin on the outer islands to care for dependents. In a practical way the economies of the islands are closely interlinked and cannot truly be separated as people, food, and money constantly shift among family groups spatially distributed throughout the urban centers and rural islands, and even to student-oriented communities abroad.

Rethinking the Marshallese Economy

A primary failing of "top-down" development planning is an emphasis on economic (as opposed to social and cultural) factors as they are understood from a Western economic perspective. There have been insufficient attempts to understand the broader socioeconomic systems currently operating in the communities for which development projects have been proposed. Western economic models tend to dichotomize—between monetary and subsistence sectors of the economy, between urban and rural issues, between modernized and traditional activities, between imported and local goods—separating rather than studying the linkages between these components. Most important, agencies may fail to recognize the ways that multiple economic models may be operating simultaneously, differentially inscribed with meaning in their constant linkages between members of rural and urban communities. The problems of such dichotomous models become apparent in the statistical accounts they create, which notably fail to describe the productive activities of fully half the populations of many countries—the women and the youth—simply labeling them as "economically inactive."

There are then two levels, two vectors, that must be considered in rethinking development from the perspective of the economy. The first refers to the need to make explicit the existence of a plurality of models of the economy. To do so entails placing oneself in the space of local constructions. But this level by itself is inadequate. A second level of concern must be added, involving the mechanisms by which local cultural knowledge and economic resources are appropriated by larger forces (mechanisms such as unequal exchange and surplus extraction between center and periphery, country and city, classes, genders, and ethnic groups) and, conversely, the

ways in which local innovations and gains can be preserved as part of local economic and cultural power. Political economic

> theories fall short of the task, especially because they do not deal with the cultural dynamics of the incorporation of local forms by a global system of economic and cultural production. A more adequate political economy must bring to the fore the mediations effected by local cultures on translocal forms of capital. Seen from the local perspective, this means investigating how external forces—capital and modernity, generally speaking—are processed, expressed, and refashioned by local communities. (Escobar 1995:98)

The Marshall Islands presents a striking example of the way Western models and current international aid practices may in fact contribute to structural imbalances within the local economy and may point toward ways to redirect aid programs so that they can assist local communities to reestablish their economies in relationship to the current global economy. Such a redirection requires a rethinking of global-local connections, a recognition of the possibility of multiple economic models operating and interacting, and a study of the cultural dynamics of such processes, as Escobar suggests.

However, the Marshall Islands case also requires a rethinking of Escobar's remodeling of the discourses of development, in that he presumes that the unequal exchange between center and periphery is characterized by surplus extraction from the periphery by the center. But the primary resources extracted from the Marshall Islands by larger forces (i.e., the United States) are strategic in nature, and the economic transfers in fact have flowed largely from the United States to the Marshall Islands (1) as payments for the use of Kwajalein Atoll for missile testing and (2) through the Compact of Free Association between the two nations, established at the termination of the colonial relationship between the two countries. These payments as well as the ways in which they have been distributed have contributed to structural imbalances within the economy. It is the decline of the compact payments that has spurred the current crisis, even though the missile-testing payments continue. Economic models in general have difficulty incorporating factors such as strategic political considerations that result in payments for primarily noneconomic purposes.

A Western Perspective of the Marshallese Economy

The Compact of Free Association, which covers financial arrangements between the United States and the Republic of the Marshall Islands from 1986

to 2001, calls for a three-part step-down of transfer payments. The Marshalls is currently in the last phase of descending payments, and it is in the context of heavy advance borrowings against remaining transfers that a structural readjustment of the Marshallese economy is currently under way.

Beginning in the mid-1960s, when the Marshalls was part of the U.S. Trust Territory of the Pacific Islands, the United States began an accelerated program of funding (following two decades of relative neglect), providing increased health, educational, and social services in Majuro, the administrative center. A second population center developed on Ebeye in response to employment opportunities on the neighboring island of Kwajalein. The United States funded the construction of schools, hospitals and dispensaries, roads, docks, and airports and the development of a local bureaucracy to run the predominantly public-sector services. Such projects and many of the current developments under way in the Marshall Islands, including fisheries projects funded by both the Japanese and international aid agencies, were in the past established on a "need" basis in an attempt to establish a local infrastructure and skills base from which the Marshallese economy could develop. Such projects were not established within the strict economic guidelines of what this small nation could "afford," nor were the projects planned in conjunction with the communities and their existing lifestyles. They did, however, succeed in building up a considerable infrastructure in several of the communities.

At present, international grant funding is drying up, and "sustainability" is a key word in current aid packets that are becoming dominated by loans rather than grants. The term "sustainability" is primarily understood within an economic framework in that projects should be able to demonstrate an ability to be self-generating within a reasonable period of time, while allowing a repayment of the start-up funding. Sustainability is secondarily understood within the framework of whether the indigenous people have relevant management and work skills, or can be quickly so trained. Altogether, sustainability is understood within dominant economic models of costs and benefits.

In these terms the current Marshallese economy is largely dependent on external transfers, primarily from the United States. There are major structural imbalances, with a concentration of economic wealth by the local elites (far surpassing pre-European concentrations), compounded by a rapidly expanding population, 70 percent of which lives in the two urban centers of Majuro and Ebeye. As a result of population pressures on land and lagoon resources, the people subsist primarily on imported foods. The small private sector that exists relies on expenditures from the salaries of an inflated public sector. Prices for foods, particularly local food, are high in the stores. Those

who cannot afford to pay are reduced to purchasing low-cost and less nutritious foods. The future, characterized by decreasing international transfers and substantial layoffs within the public sector, appears bleak.

An Alternate View Incorporating Multiple Economic Systems

The above scenario, focused on Western models of understanding, may be only a partial view of the contemporary situation. There have been a number of indications that Micronesian food systems have greater resilience than anticipated. In 1987 the Palau government laid off over two-thirds of all government workers for several months; contrary to expectations, the economy did not collapse, and people were able to return quickly to farming and fishing, and other available resources. Arguably at least as dependent on the public sector and imported foods as the Marshallese are today, the Palauans were able to rely on existing systems to feed themselves, and in interviews conducted after the crisis not one person mentioned a shortage of food, in marked contrast to their descriptions of the last year of World War II, which revolve around the famine they suffered (Nero 1989, 1993; Burton and Nero 1996). While Palau has a smaller population and larger land resources, nevertheless, the Marshalls could produce more food than it does at this time. Furthermore, statistics are very poor regarding how much is actually produced or harvested but not marketed, in particular with regard to fisheries resources.

When the islands were first incorporated into the global economy in the mid-1800s as copra producers for the international market, it was the chiefs *(irooj)* and the managerial *alab* that organized the labor of their workers *(dri jerbal).* Exercising their rights as landowners, they began taxing a portion of the workers' earnings (largely replacing any first-fruits offerings) and invested their gains in ships and trade stores. According to the historical political system, there was a concentration of knowledge as well as economic wealth by the *irooj*, who held specialized knowledge of the environment, construction and navigation, traditional medicines, and other important forms of knowledge including fisheries practices, and they were responsible for enforcing those conservation practices that existed. Following Pacific-wide practices, there was often a relationship of dependency between the *irooj* and his or her followers. The system adapted to the cash that came into the economy through copra payments. For instance, Kabua and Pollock reported that originally the *irooj* paid all hospital expenses for the *alab* and *dri jerbal* living on his land; eventually this policy was discontinued and a portion of the money earned was specifically set aside in a "doctor fund" (1967:62–63). Later, such social-welfare responsibilities were increasingly transferred to the government.

In a way, the Marshallese began considering the United States, as it made increasingly large cash transfers to the Marshall Islands, as metaphorically similar to the *irooj*. This relationship was specifically sought by atoll dwellers relocated from Bikini and Enewetak Atolls because of the U.S. thermonuclear and hydrogen bomb tests, who hoped thereby to establish direct connections with the U.S. government (Carucci 1989:85–86). Eventually they and the peoples of Rongelap and Utirik succeeded in creating that relationship; the United States has made multimillion dollar settlements, establishing trust funds for the peoples of these "atomic atolls."

Actual food systems vary from atoll to atoll, and even within the atolls, and depend very much on population sizes. In a 1967 study of Laura (Majuro Atoll), researchers hypothesized that "native subsistence patterns will change from a traditional one to that based on a cash economy" (Dominick and Seelye 1967:1). They found the opposite: even the family with the highest income adhered to a subsistence diet, mainly because the cost of tinned foods was so high at that time that people couldn't support themselves. To the extent that families on the outer islands have access to land and sea resources to feed their families from local foods, it is much cheaper to do so, and a reliance on local foods may reduce the amount of cash required for living. Similarly, using Marshallese technology such as local canoes can greatly decrease the costs otherwise expended for fishing (e.g., fuel for motorboats).

Of course, the picture is not so simple: substandard housing, overcrowding, pollution, and malnutrition are very real problems in Marshallese urban communities. The system is under high stress because of the density of the population and the attenuated relationships of the people, most of whom have moved to the centers from other atolls and islands and live on lands that do not belong to their own kin groups. They cannot build a proper home because of uncertain tenure. The relationships between many of the urban *alab* and the numerous peoples living on their lands are problematic, especially if the *alab* who gave permission for the family to settle has died and been replaced by another individual.

The ability of Marshallese to rely on local agricultural produce and on their sea resources is especially compromised on the highly urban atolls. People may not be able to grow their own agricultural produce, particularly if they do not have land rights, or may not have access to a boat to go to the better offshore fishing grounds. The seashells formerly found in the shallow lagoon flats are no longer available or in some cases are not eaten because they are considered polluted. If families must buy food, local foods are relatively costly in comparison to rice and tinned fish and meats. Those with large families may be reduced to eating less nutritious foods; others have insufficient knowledge of the nutritive qualities (and absence of nutrition in some) of the imported foods.

Most Marshallese still rely on their cultural system of reciprocal relationships, organized around the large extended families and the relationships among *irooj, alab,* and *dri jerbal.* The current concentration (although not perhaps the scale) of wealth by the local elites is to a large extent a continuation of cultural practices of concentration and redistribution followed for centuries as a productive strategy to cope with the fragile atoll environment that required close structural links and the ability to transfer goods and people from atoll to atoll. Through the elaborate exchange systems operating in most Micronesian societies, local foods can also be directly transformed into money, as when an outer-island family sends local foods to relatives on Majuro, knowing that in response the relatives will provide cash for necessary purchases or children's school fees.

Foods constantly flow back and forth between the Marshalls and its communities on Hawai'i and on the mainland of the United States; local foods and handicrafts accompany elders who participate in *kemem* celebrations such as those held to celebrate the first birthday of a child, moving against coolers of frozen meats, clothing, and other items desired from the United States (Hess, Nero, and Burton n.d.). Those interviewed, on both sides of the sending-receiving chains, reported that at times they were somewhat frustrated with the interchanges. A *lerooj* (female *irooj*) on Kwajalein complained that she was constantly being asked for cases of chickens and believed that the children should be eating more of their local foods. Those in the population centers complained of the high costs of air freight or the difficulties in planning their budgets, as one could never tell when a cooler of local food would arrive from a relative, signaling a request for money, in particular during this time of decreasing availability of cash.

At present, depending on the nature of the interaction and the place on which it occurs, one can identify at least three different economic systems in operation in the Marshall Islands that conform to at times opposite principles (see Polanyi 1957 for an overview and Firth 1965 for similar practices in Polynesia):

1. A Marshallese chiefly and extended family redistributive economy, in which wealth flows to the top, to the *irooj* and *alab,* who are then responsible for the social welfare of their workers. In this model the workers should never pay the small incidental expenses of production, which are paid by the *irooj.* They do pay a substantial proportion (often stated as 30 percent) of their earnings.
2. A governmental redistributive economy, in which public services such as health and education are heavily subsidized. Individuals pay low rates of tax; governmental costs are generally covered by external

transfers to the Marshall Islands. Marshallese often conflate chiefly and governmental redistribution since they operate in similar ways.

3. A Western user-pays economy. As external transfers to the Marshalls decline, this is the system espoused by world agencies, with individuals (workers) paying the costs of providing services. This system is considered by many Marshallese as antithetical to the proper order of social and economic relationships: why charge those who can least afford to pay these costs?

There are also transitional systems that may tap either the Marshallese economic system or wages from the government economy to provide capital to start a business, eventually moving toward a more Western distribution of costs and benefits.

These economic systems, while philosophically and practically antithetical, operate simultaneously and interact with each other on a daily basis. Previous aid projects and governmental policies, perhaps inadvertently, strengthened the second model: expensive infrastructure and outside expertise were provided, ostensibly in an effort to "kick start" development, far beyond the ability of local production to pay for such services if actual costs were truly to be considered.

There are regional variations in the relative strength and pervasiveness of the several systems as well as a great deal of contemporary contestation with regard to their operation. It appears the first two systems are strongest in Ebeye and the outer islands of the Ralik chain, consistent with the large infusions of money from the outside and the general control of such monies by the local elite, who receive the major share of rental monies as the primary landowners. In these societies much of the wealth is concentrated in the hands of the chiefly elite and governmental agencies, who then act in chiefly ways in providing the basic tools of production to the workers, including in the case of fisheries not only motorboats, but also their infrastructural support in the form of ice-making machines, cold storage, and markets.

Local Views of Sustainability

When considering projects operating in the outer islands, in particular, it is important to recognize that life on these islands has for centuries been adjusted to cycles of resource availability and periods of hardship when there might be months of rough weather making fishing difficult or when staple crops are not yet in season. Work is oriented to the task at hand, and its requirements must be integrated with other demands on workers' time. Because of the fragile nature of atoll life it has never been practical to specialize

in one economic option: the ability to draw on multiple sources provides the flexibility needed to survive when one option is at least temporarily unavailable. Thus individuals are reluctant to limit their productive labor to only one activity.

During the past century copra production has been the most successful in providing regular access to cash; it also allows workers to provide customary support to the *alab* and the *irooj.* New projects must be integrated with existing productive cycles and cannot be anticipated to operate on a full-time basis throughout the year. For a project to be truly sustainable within the existing island framework, it should ideally allow individuals to devote labor to it within existing schedules (Rodman 1987). Thus a sustainable project may need to be defined as one that allows individuals to devote labor on a part-time basis and to obtain either cash income or food for the family, but not necessarily a project that operates on a regular schedule throughout the year.

The different work schedules of men and women and of the different age groups also need to be considered. At present, outer-island communities experience extreme demographic imbalances—with a median age of twelve. There are few working-age adults, and those few are hard-pressed to provide a living and care for the dependents, even while relying on relatives in the district centers through Marshallese exchanges of local foodstuffs for goods such as rice, coffee, chicken, and meats. As primary care givers, women generally split their work time into small segments, and handicrafts are one type of export work that is relatively easy to fit into their schedules. Men can devote longer periods of time to productive work but in turn must constantly counterbalance a number of options: employment, copra making, fishing, and construction tasks in addition to community work.

Several models of sustainable income-generating fisheries projects currently operate in the Marshall Islands. One model (handicrafts using seashells) is labor-intensive but provides reliable earnings; the other (trochus production) requires little labor for most of the year but is capable of generating substantial income both to individual fishers and, through taxation, to local governmental bodies. Both require conservation and perhaps enhancement of existing resources to retain sustainability over time, but both projects have been successfully managed by Marshallese for the past decade. In addition, trochus can also potentially support a secondary value-added industry of producing button blanks (with little technological input required).

Sustaining the Ecological Basis: A View of Marine Resources

The current shift from national-level to local government control is a reversal of policy from that of the colonial era. Although in practice local governments were often left to fend for themselves owing to neglect by the central

government, all power was centralized at the national level from the 1930s onward, in particular with regard to the resources of the sea and the lagoons. Successive colonial governments and the independent Republic of the Marshall Islands have continued this national level of control and enforcement, although RMI legislation permits the return of management and enforcement to local governments.

There is insufficient documentation of indigenous sea tenure systems and resource management systems of the Marshall Islands before the transformations associated with colonization. Tobin (1967) provides an excellent overview of issues of sea tenure and the various rights and responsibilities associated with the marine resources of Enewetak and Ujelang. These atolls differ historically, linguistically, and socially from the islands of the Ralik and Ratak chains; however, resource control is generally similar to that more briefly described by other authors for the Marshalls in general (Mason 1946; Tobin 1952; Tobin et al. 1957; Sudo 1984). It is important to consider both issues of sea tenure, in terms of ownership or guardianship of resources, and the special rights and responsibilities of individuals and certain titled offices related to these resources. While some areas of an atoll's lagoon might be held in common, nevertheless, in the past the *irooj* and the *alab* could control access through their control of certain species, fishing techniques, or the ability to set aside reserves. However, the primary basis of the economic and political power of the *irooj* was based on land resources, not on those of the sea.

As a gross simplification, resources can be considered in broad geographic areas, with increasing control associated as one goes from the ocean to the shore:

1. The ocean itself was considered to be common property (certain external reef areas were recognized, and it was considered that foreigners should request permission to fish there).
2. The lagoon could be fished by any atoll or island resident, except as follows: nonresidents should request permission to fish.
3. The *irooj* and/or *alab* could reserve special fishing grounds, islands and islets, reef areas, and the like. Others could not fish in such areas except at the direction of the *irooj* and the *alab.*
4. Reef areas on both the ocean and lagoon sides adjacent to a *weto* (landholding typically extending from the lagoon to the ocean) were controlled by the *alab* of the *weto.* This reef area was considered to extend to the depth, roughly, of an individual's waist.

The reservation of certain fishing grounds did not necessarily relate to conservation practices, however, but often served to demonstrate and maintain political control (Carrier 1987).

In general, the waters of the lagoon and near-coastal areas were considered the property of the atoll community under the leadership of the *irooj.* In the past "first-fruits" offerings of fish were made to the *irooj,* after which time the fisher could use the resources, similar to first-fruits offerings of breadfruit and other agricultural produce. The *irooj* had the responsibility to ensure the proper management of the resources.

In addition to the geographic delineation of resources, other rights and responsibilities were recognized with regard to specific fishing techniques and species. In general, the *irooj* held specialized knowledge about sea resources and navigation. The *irooj* had specific duties in the allocation of resources: all driftwood, turtles, tuna, porpoises, and so forth, were brought to the chief, although he or she did not keep a special share but distributed these among all. In most Pacific societies turtles and specific fish might only be hunted at times the chiefs decreed. In addition, the chiefs organized the labor of fishing groups and controlled fishing techniques suitable to large groups, such as certain long nets. It was a general practice to divide the catch among community members, especially of valued species such as turtles.

Indigenous practices are based on detailed local marine knowledge (which is not equally held by all members of the community) and a mutual self-interest in maintaining the resources, maintained (and enforced) by recognized, knowledgeable local leaders. The nature of local knowledge of marine resources today substantially differs, both positively and negatively, from that of the past. Some knowledge has not been transmitted from the elders and learned by the younger generations, for whatever reasons. Conversely, today's spearfishers, who spend time in the water observing the fish through glass goggles, have knowledge about their habits unknown to previous generations. Changes in canoe and fishing gear technology have also substantially transformed current practices (see Lieber 1994:131–164). In addition, the religious and political organization of productive activities has changed.

Today, practices concerning rights to fish, whether or not certain fish are reserved for the *irooj,* and whether any offerings of fish should be made to the *irooj* vary between atolls and islands, and within atolls as well. The definition of rights depends very much on the context of use and on the positions of the individuals discussing the rights.

Following the Japanese transformations in 1934 that opened the reefs to all, it is generally recognized that anyone resident on the atoll/island has the right to use the resources. Generally it is held that no offerings of fish need be given to the *irooj,* certainly not a part of each catch, whether the fish are caught to feed the family or to sell. Some report that fish should or may be offered once a year while providing special foods for the *irooj* or at the beginning of a fishing season. Today the fishers normally decide when and

where they will fish and control their catch, choosing to divide it among family consumption, sharing, and sale depending on the size of the catch and other special circumstances.

In practice, the indigenous system of resource management has been severely compromised both by colonial practices and the discontinuation of indigenous sea tenure in 1934 and by contemporary population shifts whereby most Marshallese, including *irooj* and elected leaders such as mayors, may today reside outside their home areas for long periods of time. Resource management, which in the past was mainly directed to near-shore resources, has been seriously affected. In some cases indigenous practices persevere: certain island and reef areas the *irooj* previously set aside as reserves are still recognized; all the young fishers of an atoll may be taught not to take certain fishes at certain locations in order to protect other species. In general, however, local conservation practices operate on a piecemeal basis, and the contemporary system of top-down control has been impossible to manage or enforce, especially on the highly urban atolls primarily comprising immigrants or when the *irooj* and *alab* reside elsewhere. Even when an *alab* is resident today, she may take pity on fishers who break accepted conservation practices, knowing they are fishing to feed their families.

Active management of resources is especially attenuated on highly populated Majuro and Ebeye, where so many of the residents are not originally from these atolls, and the habitat itself has been substantially transformed by dredging, waste disposal, the presence of a foreign fishing fleet, and other activities of urban life. The condition of the fish stock is compromised. There are still some fish traps at both extremes of Majuro. Some are no longer used. There is contention over the use of others. Some were freely used for some time, following an unstated ethic that fish collected from the traps should be shared. Similar to experiences in other Pacific countries, where extended use rights are permitted for feeding one's family but not for commercialization, once fishers began selling fish harvested from the traps, the owners tried to reassert their control of the traps. But as long as resources are used to feed the family, the *alab* will generally not stop anyone from fishing, even if the fishing counters conservation practices.

The following contemporary practices by Marshallese, outsiders, or both that adversely affect the fish stock and larger ecological system were identified in interviews I conducted in 1996 and 1997. It appears that many Marshallese know such practices are destructive, but they happen in the enforcement gap between traditional management practices, new technology and political structures, and the failure of national-level control. The list could be considerably expanded.

1. Pollution of the reef through solid wastes and sewage
2. Unregulated use of long nets
3. Keeping undersize fish and shellfish
4. Destroying the habitat, for example, by turning over rocks to collect shellfish, then not turning the rock back
5. The use of bleach and poisons to stun or kill fish, affecting the larger habitat
6. The use of scuba gear for fishing, extending the range and scale of fishing far beyond indigenous techniques, resulting in overfishing

The list highlights issues of contemporary technology and practices that were never covered, except by general principle, under indigenous management practices.

It appears that the most feasible way to reestablish management and conservation of resources for future generations would be to return to (and support) control by leaders of the local communities, while basing such controls on (updated) indigenous practices (Spennemann and Alessio 1991). This recommendation is not based on a simplistic faith that indigenous peoples are natural resources managers. As Lieber summarizes for Kapingamarangi fishers, recognized by Micronesians as master fishers:

> Kapinga fishermen are maximizers, not optimizers of fish catches. They will, according to what they say and what they do, take every available fish on an expedition whether or not they will eat them and regardless of whether they have the canoe space to transport them back to the islet. Fish can always be given away, and someone can always be dispatched to the islet to summon other canoes to transport the fish. The idea is to get them all. So, if traditional fishing activity appeared to achieve an ecological homeostasis of human and fish populations, it wasn't because Kapinga fishermen were conscious or unconscious conservationists.
>
> The assumption that Kapinga fishermen did not have the technology that could threaten the breeding stock of local fish populations is also false. Three sorts of constraints prevented traditional fishing activity from exterminating these fish. None of these constraints are applicable at present. (Lieber 1994:132–133)

Existing technology and fishing techniques, resources, the ways fishing is organized, constraints, and incentives to fishing must be clearly analyzed. However, it is both cost-effective and feasible to return control of resources to those who stand to gain or lose the most by their use. This process must

occur in full recognition of the substantial social and ecological transformations that have taken place. Local leaders have not had this responsibility for several generations, practices and technology have radically changed, habitats have been severely compromised by the bombings of World War II, and the demography of local populations has changed, as have the governing political structures. While a return to local control is called for, no simple return to once-existing practices is possible. Traditional and contemporary regulations must be combined and supported to ensure there is no gap similar to that experienced in some communities now, when it appears that neither traditional nor contemporary regulations are recognized and maximum gleaning and destruction occur.

Contemporary local leaders must personally endorse and enforce the regulations. Pacific Islanders respond better to external social control by recognized leaders than to an internalized set of practices. To be effective, a leader of sufficient standing should be present in the community. Since there is such dissension over current practices, rights, and responsibilities, community discussions and agreement on the practices to be followed would be an essential first step. Those interviewed recognized both the difficulties and necessities of reestablishing such controls, suggesting that a series of discussions be held with the mayors, council members, *alab,* and those living on the land and using the sea resources.

In order for local resource control to succeed in areas in which foreign fishing fleets operate, a concurrent program to control outsider actions and mitigate problems of waste disposal must also be in place. At present it is simpler to blame all the problems of pollution and improper fishing practices on outsiders than to seek a solution.

The reestablishment of atoll or island management and control of sea resources will require a multilevel approach; Majuro and Ebeye will both require extensive community meetings, while the other atolls or islands may perhaps be grouped according to similar needs. After a joint workshop, the outer-island mayors and local experts may, in local community meetings, develop their own plans; the enabling legislation at both national and local levels is already in place.

Restructuring the Marshallese Economy

Separate Asian Development Bank–fielded teams were involved in overall policy restructuring and in the agricultural, fisheries, and tourism sectors; all terms of reference call for a "sustainable" future. An RMI national economic summit, originally planned for December 1996, was delayed, and the units worked relatively independently in the absence of national policy directives.

Thus, the agricultural team worked to decrease imports of rice and increase local production, just as the fisheries team worked to enhance "subsistence" or coastal fisheries for local use. However, creating a sustainable economy will require a joint effort and recognition of (1) ties interlinking local, metropolitan, and global economies and (2) intersectoral choices and prioritization of goals rather than independent movement on all fronts (i.e., it may not be possible to decrease rice imports, but restructured local fisheries may permit decreased reliance on imported poultry and meats).

Contemporary Marshallese Food Systems

Marshallese categorize edibles as *manga* (starch food) and *jelele* (relish) (Pollock 1992:26). While a proper meal combines these two categories, the bulk of all food eaten is starch foods, today primarily rice and breadfruit (ibid.). Grated coconut or coconut cream can provide the relish necessary to complete a dish if necessary, but a preferred relish is fish or meat. The role of nonstarchy vegetables and fruits is minor. Serving a wide variety of foods within each of these categories helps distinguish festive from daily meals, giving rise to the feeling that one has been especially well fed.

In 1994 and 1995 foods accounted for 28.21 percent and 24.06 percent of all imports. Cereals, including rice, made up only 10 percent of food imports, in comparison to meat, fish, and shellfish products, which made up 33 percent (OPS 1996). Rice, imported meats, fish, and meat/fish products will always remain a part of the Marshallese diet because of both the convenience of their storage and preparation, and the variety they provide. In 1997 agricultural initiatives advocated reliance on growing local foods because of their increased nutritional qualities and low cost; however, in the urban areas, population densities and wage labor both constrain agricultural production.

At present the agriculturalists are attempting to bolster breadfruit production. Rather than trying to understand indigenous food systems, the UNICEF Family Food and Nutrition Program initially began by trying to educate Pacific peoples to the importance of eating the "three basic food groups" considered necessary for a balanced meal according to Western tripartite thought. Only recently have they realized the importance of building upon indigenous constructs—in the Marshallese case, upon a binary system based on starch and relish foods. Nor does a simple logic of local versus imported apply, nor are imported foods simply a factor of recent Compact of Free Association payments. Based on work in the early 1960s before the major buildup of U.S. transfers, Tobin reported:

> The Ujilang people are used to, and require clothing, rice, flour, sugar, kerosene, matches, fish hooks and lines, fish net material, sail cloth, and other necessities. They are naturally frustrated and dissatisfied when they cannot obtain them. The islanders cannot understand why these necessities have not been made available to them regularly. As the leaders and others of this group have told the writer: "We do not ask the American Government to *give* us anything, we just want to have the opportunity to purchase the things we need in order to live." (Tobin 1967:204)

Attempts to replace rice with local foods may be anticipated to meet with considerable resistance. Although rice is an import, it is by now fully integrated within Micronesian "starch" foods. Recent cognitive studies of contemporary Micronesian food systems indicate that rice is now considered among the core starch foods, much as Europeans consider many New World foods as absolutely essential to the diet. The simple dichotomization between local and imported foods that underpins Western economic understandings of food "dependence" and locates such dependence in recent economic relationships between the United States and its former territories deserves reconsideration. Sustainability, if it is to be useful as an analytical concept, must be defined within the culturally appropriate terms of what indigenous people consider it critical to sustain. I suggest that access to rice would be one such commodity.

The further development of coastal fisheries for local consumption could, in contrast, make a much more significant contribution to reducing food imports and to increasing the nutritional quality of the Marshallese diet. Imports of meat, fish, and meat or fish preparations, comprising 33 percent of the value of all food imports, are high-cost imports compared to rice, a low-cost import that contributes a substantially larger proportion of the diet.

The development of coastal fisheries is a prime objective of the Marshall Islands national government (OPS 1991:201) and of the communities (National Fisheries Development Plan Mayor's Workshop 1996). A great deal of planning and work remain to enable the increased contribution of fisheries to the Marshallese economy. Much of the Marshall Islands Marine Resources Authority emphasis in the past was on pilot projects such as the Japanese Overseas Fisheries Cooperation Foundation projects operating on Arno; support for these income-generating projects to provide fish to urban markets will continue in importance. Initiatives to support non-market-oriented fishing may, however, also be required.

In addition to helping correct import-export imbalances, a renewed em-

phasis on fish over poultry and meats could also make a significant contribution to Marshallese nutritional imbalances. While more extreme in the urban communities on Majuro and Ebeye, poor nutrition also exists on the outer islands (Ministry of Health 1991), and can partially be traced to a poor understanding of the effects of substituting certain imported foods for local foods. Imported chicken and turkey tails, for example, contribute substantially to the increased fat in contemporary Marshallese diets that contributes in turn to diseases such as diabetes, obesity, and heart problems. The current health status of Marshallese is poor. Health specialists report that in the past people ate fish more frequently and that there is not enough fish in the diet now. In the past more sharing of fish occurred in the communities; now excess fish may be sold or sent to Majuro or Ebeye. Women and children are particularly at risk. "Malnutrition is due to the lack of understanding of proper nutrition, increasing inadequacy of local food supply, high dependence on imported processed food, [and] poor maternal health" (Lateef 1991:17–18, based on the National Nutrition Survey). Although some young children demonstrate a preference for chicken and meat, fish is still a highly preferred item of the diet, and most Marshallese interviewed would prefer to eat more fish than they currently do. Fresh fish is highly nutritious with a substantially lower fat content than poultry and meats.

Although it is difficult to draw strong conclusions, since the production figures are based on estimates, Table 2 shows a production increase for both agricultural and fisheries products in the period from 1994 to 1995. During the same period, food imports declined both in real value and even more as a percentage of total imports. The import value of meat and meat/fish preparations countered this trend, both substantially increasing, whereas the importation of cereals including rice mirrored and even declined a bit more than the overall decline. The most striking difference between imports in 1994 and 1995, according to the data in Table 2, is the decline in imports of fish and shellfish from nearly US$1.5 million in 1994 to a little over $0.5 million in 1995—a decline of nearly two-thirds. Assuming accurate and comparable data for the two years, this decline could indicate the preliminary success of projects to provide more local fish for marketing within the Marshall Islands. If that is the case, one could hope for a continuation of this trend and for substitution of local fish for meat and poultry imports in the future (perhaps aided by governmental regulations).

Besides having the potential for better nutrition and a higher dollar impact on food imports, increased fishing production may be easier to support than agriculture. Breadfruit trees were destroyed and severely damaged during the storms of the late 1980s and early 1990s, and it takes years to reestablish breadfruit production. However, fishing remains a primary activity

TABLE 2. **1994–1995 Imports and Subsistence Production**

	Value (U.S. dollars)		Change, 1994–1995 (percentage)
	1994	1995	
Subsistence production[a]			
Agricultural products	1,101,042	1,215,763	+10
Meat products	1,536,410	1,713,471	+12
Fish and shellfish	2,915,992	3,238,828	+11
Fish	2,852,174	3,168,096	+11
Shellfish and crabs	63,818	70,732	+11
Imports[b]			
Total imports	70,398,603	75,054,694	+7
Food imports	19,861,000	18,056,000	–9
Cereals (including rice)	2,127,349	1,890,313	–11
Meat, fish, and preparations	6,635,920	6,081,418	–8
Meat	3,334,191	3,503,849	+5
Fish and shellfish	1,472,017	543,340	–63
Meat and fish preparations	1,829,712	2,034,229	+11
Food as percentage of total imports[c]	28.21%	24.06%	–15

[a]*Source: Marshall Islands Statistical Abstract, 1995,* table 7.1 (OPS 1996).

[b]*Source:* Ibid., table 8.4.

[c]*Source:* Ibid., table 8.5.

within both urban and rural households. Fishing is a highly favored pastime, and men engaged in wage labor routinely fish as well—in fact, they may have increased access to prime fishing spots in that they can afford to purchase outboard motorboats. The necessary technical skills and fishing equipment are widely distributed in the communities: on a national level 57 percent of all households own a fishing pole, and another 52 percent own spearfishing equipment, with only slightly higher rural to urban ratios of ownership; 22.7 percent of households own a long net and 19.5 percent a throw net; 18.6 percent of households own a motorboat, and 12.2 percent own other boats; in rural areas boat ownership increases, with 25.3 percent of the households owning a motorboat and 19.3 percent owning other boats (OPS 1995: table 91). On most of the outer islands the lagoon resources are not too heavily affected by pollution or overfishing, although fishers do report the decline of certain species. Even in the urban center of Majuro and to a much lesser extent Ebeye, which have suffered the loss of fish and shellfish species due to pollution and overfishing, households still rely on local fishing and on purchasing local fish in the stores.

Assessing Sustainability

How shall economic viability and sustainability be understood in ways acceptable both to foreign donors and to members of the Marshallese community? In the simplest terms on a local Marshallese level, I suggest that a project is sustainable if the social, political, and economic terms under which it is operating permit it to continue. Sustainability thus requires the ability of managers and workers to maintain the required labor and the resource base. Sustainability also requires special attention to demographic realities, gendered work activities, and resource management. Politically a project must be acceptable to community members and its leaders. Economically it must be able to continue to balance monies expended and received within the larger social matrix within which it is operating.

At the national level a prioritization within achievable objectives would be helpful. While the Marshalls may never again be able to produce all the foods its people eat, it may be able to reduce certain targeted food imports significantly.

At the international level, it is critical to stop labeling all monetary transfers from "metropolitan" to "peripheral" communities as aid. Certain transfers, such as those for the Kwajalein missile base, pay for land and lagoon alienation, just as compact-related transfers pay for the historical, strategic denial of such resources to third parties. Other transfers sweeten payments for resource exploitation beyond the price levels the distant water fishing nations are willing to concede (Nero 1997). These "aid" payments themselves contribute to continued structural imbalances within the local economy.

One of the key differences in the different economic systems currently operating in the Marshall Islands (and arguably in Western economies as well) is the degree to which projects are considered to stand alone or allowed to be embedded within wider sociopolitical structures. As long as analysts continue to view economies as separable, rather than interlinked and interdependent, our analyses, like the economies, will remain structurally imbalanced.

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