

## MARSHALL ISLANDS

<b>Capital:</b>	Majuro
<b>Land Area (km<sup>2</sup>)</b>	181
<b>Sea Area/EEZ (million km<sup>2</sup>)</b>	2.1
<b>Islands (No.)</b>	1,152 and 30 atolls
<b>Population (No.)</b>	51,700
<b>Annual Growth (%)</b>	2.0
<b>Density (inhabitants/km<sup>2</sup>)</b>	286
<b>Rural Population (% of total population)</b>	35
<b>GDP (US\$ million)</b>	90.3 (1997)
<b>Agricultural GDP (% of total GDP)</b>	14 (1996/97)
<b>GDP per caput (US\$)</b>	1,774 (1997)
<b>Currency:</b>	United States Dollar

### A. General

The Marshall Islands consists of 29 low-lying coral atolls and five islands spread over a sea area of over 750,000 square miles, in the Central Pacific. There are more than 1,200 islands and islets with a total dry land area of 180 km<sup>2</sup>. Inhabited islands and atolls occupy 156 km<sup>2</sup> or 15,600 hectares. The islets and islands have a mean elevation of 2 meters above sea level, making them particularly vulnerable to sea level rise and the destructive forces of tropical storms.

RMI has a resident population of 58,800 growing at the rate of 3.8%. About 30,000 of the population live in Majuro and 11,500 in Kwajalein, mainly in Ebeye, giving a combined urban population of approximately two thirds of the total population of RMI.

The climate is warm and humid with temperatures ranging from 24.7–29.9°C, humidity of 78-83% and annual rainfall of approximately 3,388 mm. It is generally dry from January to May and rainy from June to December. The soils are sandy and alkaline and lacking in many essential elements, particularly nitrogen, phosphorus, potassium and calcium. Lack of organic matter and calcium makes water-holding capacity very low.

Over time RMI's economy has been shaped by external forces. The Marshall Islands were occupied by Germany (1860-1914) and Japan (1914-1944). Since then, special relationships evolved between the country and the USA. From 1945 to 1986 the RMI was part of the United Nation's Trust Territory of the Pacific Islands administered by the USA. The USA relinquished its trusteeship under the terms of the *Compact of Free Association*. Under this agreement the US continues to lease most of Kwajalein atoll for its military base and provides substantial financial support to the RMI economy until the year 2001. This agreement has been extended to 2004 to allow negotiations on a new Compact agreement to be finalized.

In 1992, the GDP was estimated at approximately US\$80 million (US\$1,540 per capita), USA funding accounting for about 65%. In 1999, GDP was US\$97 million, with approximately 80% accounted for by US funding. GDP is dominated by the service sector, mainly supported externally. Domestically generated economic activity is based upon the agriculture sector.

Increasing urbanization coupled with high wage levels that do not reflect domestic productivity, generates a high level of consumption. In turn the high level of consumption is reflected in very high imports and a substantial deficit in the balance of trade. In 1997, total imports were valued at \$80.2 million compared to exports of US\$16.7 million<sup>13</sup>. About US\$25 million or 31% of the total import bill was for food. For the most part, the trade deficit is covered by external funds.

## **B. The Agricultural Sector: Constraints and Strategic Options**

**Agriculture and the Economy.** Agricultural production is relatively small but important to the livelihood of people and the economy of the Marshall Islands. It comprises food crops, small livestock and one cash crop, copra. Land for agricultural production is limited. In most atolls there are islets that are not suitable for growing crops. Less than one half of the total land area is considered as potential agricultural area. Use of available land for housing, infrastructure and US military needs competes with that for cropping.

**Land Use, Farming Systems and Institutions.** A typical landholding (*weto*) is a strip of coconut grove that stretches across an atoll from the ocean to the lagoon. Near the dwelling the coconut canopy would be accompanied by a few breadfruit, papaya, banana and pandanus trees. Within the coconut grove there may be a taro pit. Room may be found to house a few poultry or pigs. Very few *wetos* include area for vegetable production and there is no commercial production of food crops. Since early this century, coconuts (copra) have provided the main household income. This is still the predominant pattern although the role of copra is weakening and indigenous staples now combine with increasing amounts of imported food.

Breadfruit is the most widely available starch food and regularly consumed when in season from January to March and June to July. Some breadfruit is preserved using traditional methods. Pandanus produces fruits between December and March and a year's supply of leaves for roofing and handicrafts. Production of sweet bananas varies between atolls with Namdrik and Ebon atolls having the greatest relative production. Cooking-banana is less common. Pumpkins are widely eaten and easy to grow. Production of taro and sweet potato has fallen dramatically because of increased access to imported staples, which are more convenient for preparation and storage. Arrowroot, the traditional staple of the atolls has virtually disappeared from use.

Local foods are used for special occasions, as a reserve when imported foods are not available, and for variety (from imported foods). Traditionally, food crops were not sold but shared or exchanged. Exchanging atoll food for imported food between relatives living in the outer island and those in the urban centres is prevalent. Most young families have been growing up in times of easy access to imported foods. Therefore, many of the youth, especially those in urban areas, are unfamiliar with atoll food production.

Livestock production in the country is visible mainly in the outer islands. At subsistence level, pigs and free-range chicken are the main livestock kept. Most households at the outer islands keep a few pigs and a number of local chickens.

<sup>13</sup> SPC Selected Pacific Economies – a Statistical Summary (SPESS) 1997.

The fisheries sector comprises two sub-sectors, coastal and oceanic fisheries. The coastal fisheries (reef and lagoon) consist of inshore and near shore resources. They are the basis of domestic food security for outer atoll/island communities. Households harvest these resources for their own consumption – at the rate of 1,500–1,700 tons per year – and sale to the urban areas. In Laura on Majuro Atoll a fishing-cooperative formed with support of an NGO (Mission Pacific) carry out fishing on a commercial basis, supplying fish to retail outlets in Majuro.

The oceanic fisheries are offshore resources in the exclusive economic zone (EEZ). These are harvested for sale in overseas markets, and since 1999 some of this product has been going to the Majuro tuna loining plant. Oceanic fisheries resources are exploited through licensing of vessels from distant water fishing nations (DWFNs) allowing them to fish in the Marshall Islands EEZ.

The use of trees (coconut stems and leaves and pandanus leaves) for construction purposes is common particularly in the rural areas. Use of trees for firewood is especially common in the outer islands. Trees also provide protection of the coastal areas from the ravages of tropical storms. There is however no evidence that people plant or replant and manage trees for these purposes. Effort is currently being made to promote such activities.

**Major Constraints and Challenges.** Typical of atoll soils, the soils are generally thin, sandy, alkaline and lacking in minerals (particularly nitrogen, phosphorus, potassium and calcium) and micronutrients essential for plant growth. Low and poorly distributed rainfall combined with the poor water retaining properties of the soil limits the range and quantities of crops that could be cultivated.

The country is isolated from overseas markets making transport costs high and undermining the competitiveness of agricultural products that have potential for export. Many of the outer-atolls/islands are isolated from the markets at the urban centres. The domestic market is small and undeveloped, resulting in volatile prices for local produce, limited opportunities to diversify production, inefficiencies and diseconomies of scale in production, processing and marketing. Local market, air and sea transport infrastructure is generally undeveloped.

Introduced pests have increasingly become important. Coconut scale, the spiralling white fly and the breadfruit mealy bug were mentioned as the most important.

While the land tenure system has ensured equitable access to the land for food production, the small size of the farming land constrains commercial agricultural development. Furthermore, the tenure system makes the use of land as collateral for development credit difficult. Both the past and present Presidents agreed with the need for a review of the land tenure system. Government now plans to implement such a study.

**Strategic Options.** The main strength for development of agriculture in RMI lie in the fact that a robust traditional agro-forestry farming system had survived for centuries, albeit, now not commonly practiced in urban areas and by the younger generations. The Agriculture Division has staff with extensive experience in atoll agriculture. There is thus a strong base on which to build capacity and capability through long and short-term training.

There are islands that are strategically located close to the fresh food supermarkets of the urban centres and have good soils on which more intensive agricultural production can be

undertaken. The land tenure system can provide easy access to land for farming. All land in the RMI is owned not by government but by Marshallese individuals. One can commercially farm land provided one gets the necessary approval from the three current title holders<sup>14</sup> (*iroij*, *alap* and *dri-jerbal*) of that land. Government may lease land from the title holders then sub-lease it out. In addition, the RMI social system facilitates equitable distribution of food and material wealth, and caring for the less fortunate members of communities.

Opportunities exist for import substitution particularly in meat production, since the demand for pork, chicken and eggs is now almost wholly met by imports. The decisive factor determining local livestock production is perhaps the cost of animal feed since such feed has to be imported. With sufficient scale of production, the establishment of a local feed mill may become a viable proposition. However, it should be noted that although a portion of the protein raw materials - fish waste and copra cake - needed for such an operation may be locally supplied, the energy components - corn and sorghum etc. - would need to be imported.

Hydroponic farming is a relatively new technology that has been tried in RMI. The technology is an attractive one for the RMI environment although lack of high quality water and occasional sea sprays would act to discourage entrepreneurs.

Handicraft making involves traditional skills passed from generation to generation and deeply ingrained in RMI women. It would take proper production/market organization and some market savvy at home and abroad to turn these skills into household incomes across the atolls.

RMI has a large exclusive economic zone of around 720,000 km<sup>2</sup>. Substantial pelagic sea resources have scarcely been exploited. The fact that the sector is relatively undeveloped provides an opportunity for the formulation and implementation of effective management regime that will ensure the sustainability of the resources.

Export market opportunities exist for most of RMI's fishery resources, particularly for fresh fish. Price movements in high-grade markets show an upward trend, which reflect growth in demand. Its close proximity to the cannery in American Samoa as well as US tax concessions for RMI products, provide competitive advantage for RMI's fish export industry. The construction of a service centre for fishing vessels has been identified as a feasible investment opportunity for foreign investors. Activities such as repair and construction of boats, provision of fuel, ice, and selling of certain fishing gear, etc., can be undertaken at the centre.

On the issue of food safety, the RMI does not have any food standards. RMI is a member of FAO but not of Codex Alimentarius. This may possibly have negative influence on RMI's export trade, particularly that in fishery products.

## **C. Project Interventions: Income Generation Activities**

### **I. Arno and Kwajalein Community Pig and Chicken Production**

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<sup>14</sup> Ownership rights to land are held by the hereditary chief or *iroij* (or *leroi* if female). The *iroij* bequeaths custodial rights to a particular lineage called *alap*. Both the *iroij* and *alap* rights are inherited through the female line. User rights are held by all members of the lineage who stand to inherit the *alap* position. These claimants known as *dri-jerbal* or workers, may or may not actually use the land holding.

The primary objective will help provide more reliable and diverse sources of meat and eggs for the people of Arno Atoll and of Ebadon and Carlson of the Kwajalein Atoll. The secondary objective will be the supplement of additional income for the people through sales of pigs and chicken to the urban centers of Ebeye and Majuro. There are 2100 people on Arno atoll and 10,000 on Kwajalein Atoll; they will be the beneficiaries of this project. Families on these atolls are facing difficult economic times as a result of the collapse of the copra prices. This project will help these communities become more self sufficient in food. In addition, because Arno Atoll is close to Majuro Atoll and Ebadon and Carlson Island to Ebeye, there is potential for families in these atolls to generate income from this project by selling to Majuro and Ebeye atolls respectively.

The primary activity of this project will be the construction of sheltered pig sties and chicken coops. The local governments will purchase pigs and chickens from the Ministry of Resources and Development agriculture complex on Mauro atoll and will oversee the raising of pigs and chickens for distribution to the households. Pigs and chickens will be raised for 3-4 months before distribution to the households. The people of these communities, coordinated by the local government will manage production.

- Construction of pig and chicken raising facilities;
- Purchasing of pigs and chickens from Ministry of Resources and Development;
- Raise pigs and chickens for 3-4 months before distribution to households; and
- The project participants will manage the operation with facilitation by the local government.

#### **Success Indicators**

- Source of meat and additional income to project participants;
- Access to meat and eggs reduces dependence on canned meat; and
- Improved nutrition.

The local contribution includes: US\$7,500 cash, local staff supervising the project, transport of material and animals, training facilities and office for project staff.

## **II. Nallu Mile Fishing**

The primary beneficiaries are small rural fishermen on the small island in Mile Atoll called Nallu. The atoll is located 60 miles south of Majuro. Youth and adults on the island have organized themselves into groups of ten or more in order to fish continuously by taking turns. The women have likewise organized themselves into groups in order to support the men on land by preserving the catch. Fishing method varies according to the condition of the surf, the lagoon, and the open ocean. These methods include spear fishing during day and night, bottom fishing, trolling, line and hook fishing and net fishing. The fish are either preserved in ice, salted or smoked.

Mile Atoll was the Japanese Imperial Army's Headquarters during the Second World War. The Japanese fortified the islands and paved air fields in large areas that are of little use to the people today because of concrete overlays. Farming is limited because of the danger of unexploded ordnances from the WWII. Because of these conditions and because fishing has always been a way of life in the Marshall Islands, the people of the Mile Atoll survive mostly by fishing.

The project will be monitored and assisted by the Marshall Maritime Resources Authority (MMRA). This MNRD division will assign one or two of its specialists to provide technical assistance in areas where the people are incapable. In addition, the traditional leader of the Island of Null, a woman, is the driving force of this project. By being the daughter of high chieftain, she has the support of the community and has been elected as the President of the community effort.

The men will fish while the women cook and preserve the excess fish supply. A meeting already took place whereby the 25 families in Nallu Island agreed to contribute the initial sum of US\$1,000 for the project. The money will come from handicraft sale and the sale of copra. In addition, the R&D's Small Business Section will assist officers (president, vice-president and secretary) of the project by providing technical assistance with money management.

The objective of the project is to increase and sustain income by the sale of fish that will be caught through traditional methods of fishing whereby the island community, men and women, will have a role to play.

The local contribution includes: US\$1,000 cash, local staff supervising the project, training facilities and office for project staff.

### **Success Indicators**

- Sustainable source of income for members of the association, their families and the community; and
- Established funds for on-going project support and other identified association and community initiatives;

### **III. Laura Village Fish Processing**

The beneficiaries of this project are the families of the 15 young women and men that are members of the Laura Village Fish Processing Association. The members of the association come from various sections (wetos) of the Laura Community. Indirectly the project will therefore benefit the families of the membership and the entire community at large by way of providing sources of income as each of the members represents a household.

Laura Village has a population of 4,347 and is located at approximately 30 miles west of Majuro, Capital of the Marshall Islands. The majority of the people are engaged in subsistence farming, fishing and home gardening. Village youth some of whom have dropped out of school have no sustainable means of livelihood. The traditional local source of income, copra making, is now at its lowest ebb due to the drastic fall in world price. Hence alternative means to livelihoods such as fishing and fish processing are important.

The majority of the male youth possess some artisanal fishing skills, and the female youth, fish processing skills. However, due to inadequate resources these skills could not be utilized enough to earn them and their families' sustainable income.

The project will entail fishing, processing and marketing of the finished products locally, in key centres like Majuro and Ebeye with potential of export to Japan and some parts of the US. Members of the association will be remunerated for their labour input to the daily operations of the project. Members will be fishing nightly and during the day at least 3 days per week and will be processing and packaging the fish at the processing centre on the other days of the week. The fish products will then be packed in plastic zip-locked and vacuum-sealed bags or other types of containers suitable for the market.

The association has conducted market surveys for the products. The surveys indicated there is demand for tuna jerky, salted and smoked fish in both Majuro and Ebeye. Some store operators in Majuro and Ebeye have also indicated their interest to serve as distribution outlets for the products. There is also indication that marketing the products in Arkansas, Hawaii and Japan is possible.

The project activities will include fishing, fish processing in the form of making tuna jerky, smoked and salted fish and marketing these products in Majuro, Ebeye, Hawaii, Arkansas and Japan. The association will have a central processing and packaging centre where all the catch and fish purchased will be preserved, processed, and packed. The following activities will be implemented prior to realization of project outputs:

The local contribution includes: US\$1,000 cash, local staff supervising the project, training facilities and office for project staff.

### **Success Indicators**

- Sustainable source of income for members of the association, their families and the community;
- Association members gain knowledge and skills in fish preservation, processing and marketing of indigenous products;
- Established funds for on-going project support and other identified association and community initiatives; and
- Expansion of association membership.