

**MARSHALLS HUMAN DEVELOPMENT PROJECT**  
**A Comprehensive Report**

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Submitted By  
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## TABLE OF CONTENTS

### PART ONE: INITIATION

I. Background	1
II. Interim Status Report	3
III. Financial Summary	7

### PART TWO: INTENSIFICATION

I. Two Year Projection	8
II. Program Descriptions	9
III. Financial Summary	25

### PART THREE: APPENDIX

I. Consultation Summary Statement	
II. A Proclamation of Community Consensus The Committee of 100 Citizens	
III. Actuating Programs Progress Report February 1976	
IV. Status Report for Eighteen Months	
V. Testimony By J.W. Mathews Before the Committee on Interior and Insular Affairs	
VI. Letters of Endorsement and Support	

## BACKGROUND

The Institute of Cultural Affairs is a not-for-profit organization chartered in the state of Illinois. The I.C.A. has affiliate offices in 23 countries with separate articles of incorporation. In all there are 105 offices in cities around the world and full-time staff numbering approximately 2,000. The part-time voluntary help number upwards of 10,000. The I.C.A. is funded by concerned individuals, corporations, foundations and government agencies.

The I.C.A. is concerned with the human factor in world development; that is, the factors that permit all individuals to participate in advancing their socio-economic conditions. To this end the I.C.A. has spent 20 years developing a replicable methodology for socio-economic development on the local level. The I.C.A. has begun demonstration projects in nine countries to illustrate this unique method, and has staff on-site in at least four others preparing for an initiating consult. In each case a consultation is held in the selected community and a report is published to be used by that community as a developmental textbook. These reports reflect the planning of the local people. The outside experts serve only to illuminate resources that may not be apparent to the demonstration community. Once a project begins, certain consultants remain to help in the implementation of the programs. Their services involve set-up and training. These projects provide the private voluntary sector with a legitimate means of participating in the socio-economic development of their nation. Full-time or short-term I.C.A. staff are motivated by their concern for local development in areas of the world with the greatest need.

In addition to training provided by the I.C.A. staff, it also helps to secure capital. A certain amount of injected capital is needed to launch each program. Even though the objective of each program is self-sufficiency, some seed money is required to establish an adequate infra-structure. The funding scheme for each project is always a joint venture involving both the private and public sectors. The monies are controlled by authorized local agencies who maintain rigorous practices of accountability. The I.C.A. is not a recipient of funds nor does it in any way monetarily benefit from such projects.

However, the I.C.A. does insure that monies targeted for a particular project be spent wisely and conservatively within the budget set forth in the initiating consult.

The Agency for International Development has approved projects initiated by the I.C.A. and has reviewed its operations on site and at its Chicago headquarters, as well as its bookkeeping and program capabilities. Their report is on file with the State Department and will testify to the I.C.A.'s organizational competency.

In terms of the future, the crucial issue is replication of these demonstrations. A replication plan is currently being implemented in India. In the next three years 250 villages in the State of Maharashtra will participate in the socio-economic renewal process in operation in the project in the village of Maliwada. As demonstrations already initiated in other parts of the world reach fruition, it is anticipated that the task of replication will be assumed by concerned local citizens.

The Marshalls Human Development Project has been, and will continue to be, a joint effort on the part of the peoples of the Marshall Islands and the District government. The purpose of the project is to build a strong and resourceful private economy and effective social institutions. Due to the remoteness of the islands there has been very little interest in the Marshalls since World War II. The only real economy remaining is the vestige of Japanese mercantilism dating back more than 30 years. Dependency has characterized the socio-economic condition of the islands for centuries. This dependency has caused the disintegration of many of the old traditions that made this people great. There exist, however, a deep pride and a subtle determination to correct this situation.

The I.C.A. has had staff in the Marshall Islands for eight years in teaching and business positions at the invitation of local institutions. It was in Majuro, in September of 1974, that the I.C.A. was invited to hold the first human development consult, making the Marshalls Human Development Project the forerunner of all the others. In two years much has happened. The interim reports reveal solid advances in the arena of the economic and real improvements in the quality of the social services provided to the people. The credit for this development belongs to the people of the Marshalls and the private supporters who contributed their resources in the conviction that this was a significant demonstration.

The most critical need at this time is extending the sixteen actuating programs to each of the inhabited atolls of the Marshalls. Because funding has been slow, most of the initiating work has been done on Majuro, the district center. Without direct federal assistance the MHDP will not be able to provide the kinds of assistance needed by the people of the outer islands.

## ALL ISLAND HEALTH SERVICES

Primary health care in the Marshall Islands is presently made available through government medical services and public health programs. Efforts have been made during the past sixteen months to facilitate these ongoing services through certain structural aids. The first leg of the Island Survey trip, a sixteen day voyage to ten atolls in the other islands, permitted a health team to gather important base line data, such as the first handicap census. On that trip a public health team also immunized eight hundred children, a task which otherwise would have required several months to complete. In addition to the trip, training programs have been held through the Marshalls Community Action Agency to equip staff of various local agencies to inform community residents about practical health care methods. The May, 1975 medical report of Dr. Kenneth Gilbert, ICA Consultant, recommended that emphasis be placed in the arenas of nutrition, sanitation and transportation in order to complement ongoing public sector service in other areas. The Laura Land Farm, the water-sealed toilets project, and the National School Lunch Program have been responsive to this need. Local production and the import to Majuro of atoll produce through TASC have been encouraged, and the Marshalls Community Action Agency adult education programs dealing in the recommended arenas have been made available. Other atoll health care improvement measures continue to depend largely on the development of a rapid, regular transportation system. A small seaplane now operates which provides emergency evacuation service throughout the Marshalls. The Community Health Planner's and Marshalls Community Action Agency's efforts to promote interagency cooperation have made the services of outside medical specialists more widely available.

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## ALL ISLAND PRE-SCHOOL

Marshalls Consult I recommended extending atoll preschool instruction in four ways: creating and training a pre-school teacher corps, developing an enrollment campaign, initiating a signal Pre-school and creating pre-school symbols. To date nine local women have been trained in the Pre-school through a two-week training session and continuous on-the-job training. Head Start, with the Institute of Cultural Affairs Consultants, sponsored a two-week Early Education Conference in July, 1976, in which one hundred and thirty participants from twelve atolls took part. The Pre-school teachers participated in the whole Marshalls Human Development Project through the Island Survey trip, Consult II and Marshall Islands Business School classes. Both Head Start and Pre-school have formed Parent Teacher Associations and elected boards or committees to advise their activities and direction. Parents have created the playground space, built slides, see-saws and painted the walls. Local businesses have donated all the paint and lumber for these workdays and for Pre-school tables and benches. The Pre-school began in Uliga in October, 1974 with one master teacher, four trainees and fifty children aged 3, 4, and 5 years. In January, the enrollment rose to one hundred with double sessions and three more trainees joined the staff. One teacher and six trainees ran the summer program and one more teacher was added in September when the Pre-school expanded to Rita.

## HERITAGE TOURISM PROJECT

The Consult I laid out directives to reawaken the motivating spirit of the Marshallese people. During the past year some research has been done with the elders towards a heritage curriculum. Several elders participated in the Island Survey trip, telling the story of "The Diamond of the Pacific". Work days have been effective in the cleaning and beautification of the community and in catalyzing other groups to do the same. The Alele Shop has been opened, passing on the traditional weaving skills. Work has begun in building traditional fish traps. A signal event in tourist promotion occurred in the Spring of 1975 with the opening of the International Airport Terminal in Majuro. Thousands of dollars of traditional Marshallese handicrafts are being sold by the Busy Hands Shop, the Marshall Islands Handicraft Shop, KITCO's Handicraft Hut, and the new Alele Shop. The new Hotel Ajidrik opened in September, 1975, with nine rooms. The Eastern Gateway recently changed ownership and announced plans for improvements and expansion of rooms. Facilities, designed to appeal to the tourists, include the new IRSCO Restaurant and Lounge, the remodeled KITCO Bar, the remodeled MIECO Bar, the new Reef Bar and the Marshallese decored Whitney Brothers Restaurant. Transportation on Majuro has been improved with the addition of fifty new rental cars and twenty cent taxis, a boat marina and a charter-seaplane.

## ADULT EDUCATION PROGRAM

Adult learning programs are intended to provide general adult functional education through methods training, media programs and language training. The introduction of television in Majuro and the continuation of English language classes in the public and business schools have been instrumental in providing education for the residents. The Island Survey Trip used the method of the community forum or "town meeting" to introduce the Marshalls Human Development Program to the people of the outer islands. Since April, 1976, weekly meetings have been held in five locations on Majuro. Between seventy five and one hundred people have been in attendance each evening. These meetings include instruction and conversation in English, remembering the Marshallese history and heritage, and the laying of plans to care for their neighborhoods. This has resulted in five community workdays where gardens have been planted, sidewalks constructed, general clean-up and repair as well as other beautification projects. This type of education which seems informal and indirect has proved to be highly effective in motivating people to become active in their communities and to seek further education. A similar program exists in the Small Industries program where basic mathematics are taught for the practical purpose of each group of workers keeping their own set of books on their industry. Also methods of long range planning are taught, and every three months two days are spent in planning what must happen during the next three months. The last day of each week a one hour meeting is held with the workers of all the small industries to review what has been done, sales, expenses, problems, new breakthroughs and what will need to be done the following week.

## MULTI-PURPOSE REPAIR CENTER

The Multi-Purpose Repair Center was established operationally in January, 1975 with the arrival of the KITCO (Kwajalein Import and Trading Company) refrigeration unit. KITCO made available its abandoned repair garage for the Center. The garage was refurbished, miscellaneous tools and equipment were gathered to initiate the program. Ten CETA (Comprehensive Employment Training Act) trainees were employed in April. The ICA provided a master machinist, an electrician and a refrigeration consultant. An operational agreement made with KITCO made the Repair Center an operating division of the company. Diagnostic and testing equipment arrived in December and January, through an EDLF (Economic Development Loan Fund) of \$5,000. KITCO has invested in concrete floors, roofing, office facilities, equipment, spare parts inventory, and payroll. The Repair Center serviced the Toyota dealership for KITCO as well as KITCO's Evinrude dealership. The grand opening was held on January 19, 1976. With the arrival of a business manager, needed tools and equipment, and a spare parts inventory the Repair Center serves as one of the locales for the apprenticeship program, mentioned previously in this report. Several who are enrolled as apprentices have been trained to take leadership roles and are taking advanced courses in the Center.

## THE MAJURO BUSINESS CENTER

The Majuro Business Center serves the Islands by providing management guidance to businesses, bookkeeping services, and apprentice training, an office equipment pool and office training school. The first class in secretarial skills was held during November, 1974, with additional classes in bookkeeping, business English and typing started in January, 1975. Twenty students attended these evening and Saturday classes held at the Marshall Islands High School. KITCO received an audited, certified financial statement for this year end, and financial models were built for the coming year. The second quarter began with three rented IBM typewriters and donated office equipment next to the KITCO General Office with thirty students. The Center also prepared SBA (Small Business Association) loans for TASC, MIECO, ITSCO, and AWC. An audited, certified financial statement was published as of March, 1975, for TASC, and eleven additional balance sheets and income statements were published for all the then existing TASC companies. Twenty TASC member company financial statements were published as of June 30, 1975, and daily field visits were continued in order to update, revise, create and install accounting systems and procedures. The Center enrollment increased to thirty-two for the January to March session and thirty-one for the July to September session.

## OCEAN FISHING ENTERPRISE

The Ocean Fishing Enterprise is intended ultimately to become a company which can coordinate fishing, processing, and storage of fish. Beginning the week of March 3, 1975, a trained Marshallese fisherman and ten apprentices began shark fishing as a part of an interim plan. Contacts have been made in the Pacific and the East relative to the marketing of shark fins for an expanded use of this product. Until now, lack of adequate refrigeration facilities has been a key contradiction to the expansion of this industry by the Marshallese. Now, however, there is a five hundred ton reefer plant at the new dock in Majuro currently under construction. Bako, Incorporated, began shark fishing operations in August, 1975, with a converted tug boat. This new company has the potential to supply meat to the local market, as well as exporting jaws, fins, and hides to established markets in Honolulu and Japan. The present catching capacity does not yet meet the demand for exportable products. A twenty-five foot tuna fishing boat was acquired by the small industry program in October. It was overhauled, repaired, and is now ready for operation. Arrangements are being made with a local fisherman to use this boat in his already established three-boat, seven-man, tuna fishing enterprise. The consultative efforts of Dr. Eugene Buck resulted in new designs and methods for increasing the shark catch and netting methods to increase the catch of other varieties of saleable fish. All of these methods are still in the experimental stages.

## COCONUT PRODUCTS INDUSTRIES

Initial research has been completed on a variety of products that can be made from the coconut. A sawmill is already in operation turning old coconut trees into useable lumber for construction, handicrafts and furniture. A Wanger plant to produce fresh coconut oil of low acid content has been researched. This is a small plant for producing a very high grade oil for cooking, perfumes, soaps and cosmetics to supply the local market. Low cost machinery has been found in the Phillipines which extracts fibres from the coconut husks for making rope, packing materials and a fiber board for building purposes. Other inexpensive machinery is available in the United States for turning the nut into a bricket charcoal and for mixing the used copra fibers from the oil plant with a locally made fishmeal to produce both an animal feed and a plant fertilizer. Already in the women's industries, coconut oil is being made by hand and sold locally for cooking and making perfumes. Because of the primitive production methods they are unable to supply local demands. In addition they have requests for their products from other parts of Micronesia which they can not meet at present. Six Marshallese women are being employed at this time. With additional equipment thirty or forty additional jobs could be created and local as well as export markets supplied.



MARSHALLS HUMAN DEVELOPMENT PROJECT: FIRST TWO YEARS LOCAL SUPPORT FUNDING

ITEM	GRANTED	COMMITTED	TARGETED	TOTALS
<p><b>SUPPLIER CREDIT</b></p> <p>Credit access for volume buying during first 12 months            1,900,000.00</p> <p>Volume buying in trade goods            1,185,000.00</p> <p>EDLF: Loan for dry dock            EDLF: Loan for shark fishing industry            25,000.00</p> <p>EDLF: Loan for multi-purpose repair center            5,000.00</p> <p>Loans to small industries for equipment            40,000.00</p>			85,000.00	2,117,000.00
<p><b>INKIND CONTRIBUTIONS</b></p> <p>CETA: 53 persons employed            50,128.89</p> <p>Preschool books and toys            400.00</p> <p>Fishing equipment            700.00</p> <p>Fertilizer            200.00</p> <p>Seeds for corn and sorghum            500.00</p> <p>Welding equipment            200.00</p> <p>Twenty ton reefer van            12,000.00</p>				62,228.89
<p><b>LOCAL FEES</b></p> <p>Tuition: 100 preschool students @ \$5 per mo.            7,500.00</p>				7,500.00
<p><b>GRANTS</b></p> <p>Campaign for Human Development            68,800.00</p> <p>Matching Funds            20,594.49</p> <p>Campaign for Human Development            15,700.00</p> <p>Matching Funds            405.51</p>				105,000.00

GRAND TOTAL \$2,292,228.89

## TWO YEAR PROJECTION

The first two years of the Marshalls Human Development Project emphasized the initiation of all sixteen programs of the project. The main object was to involve a cross-section of the Marshallese people and to engage as many as possible in the actual development of the project. This primary contact work meant, necessarily, that the programs would emphasize the social dimension of the project. A series of community meetings was held on every inhabited atoll to acquaint the Marshallese people with the MHDP. Preschools and adult education programs were begun on Majuro. Weekly community meetings across the Majuro atoll were stressed, as was the program for intermediate aged youngsters called "Jets." The economic projects also emphasized engaging the Marshallese people in these various endeavors. In this manner, nearly all of the people of the Marshall Islands have, in one way or another, participated in the MHDP. It has been crucial to establish educational and training structures and basic community services in order to provide a stable social base which can now pave the way for the economic intensification that is now so critically needed. It is with this kind of base that the people of the Marshalls can begin to concentrate on establishing an economic network which will support itself and provide productive employment.

Over the next two years the emphasis will be on the economic. While the social programs will continue and intensify, the project's direction will be to develop and sustain sound economic growth. There are two priority emphases. The first is the development of the primary human and natural resources of the Marshall Islands. Of particular concern is the Marshall's basic export resource; that is, the coconut industry. There are four main programs of the MHDP in this arena. They are the Marshalls Training Corps, the Apprenticeship Program, the Copra Lagoon System, and the Inter-Island Ferry Service. The second priority is concerned with expanding the resources used, both human and natural, by adding industries that can sustain a sound ongoing economic growth in the Marshall Islands. These programs are the Small Industries Program, the Demonstration Land Farm, the Marine Farm Demonstration, and the Housing Project.

## MARSHALLS TRAINING CORPS (MTC)

The Marshalls Training Corps is a way to train youth in employable skills and prepare them for civic leadership. A staff of twenty-five Marshallese men experienced in working with copra and twelve school teachers will conduct a practical and academic curriculum. The students will travel to various atolls where they will learn such skills as copra harvesting, replanting of trees, and cultivating a second crop under the existing trees. Profits from the harvest will go to offset the costs of the program and provide the youth with funds. Instruction in basic mathematics, English, sociology and history will be provided, practical skills in carpentry and mechanics will be taught, and Marshallese heritage and culture will be studied. Such a curriculum will provide the necessary tools for responsible citizenship in a developing society.

The program combines vocational training for youth with the expansion of copra production and has four distinct components. A vessel will need to be available with accommodations suitable for a training facility. Secondly, the MTC will provide students with a comprehensive, functional education which will discipline them in preparation for their role as useful citizens. Travel throughout the islands will give them new insights into their society as they serve the community and participate in pioneering new commercial enterprises for coconut products. Third, a guild will be formed, made up of Marshallese elders experienced in copra harvesting, to supervise teams of youth. Finally, in offering the students a choice of practical skills, machine, carpentry and electrical shops will be maintained with modern equipment and materials.

Within the first program priority group, the Marshalls Training Corps began on a small scale in July, 1976. There are currently forty youth on Arno Atoll harvesting copra and forty more in Majuro working in the Small Industries Program. It has begun to deal with the huge problem of unemployed and untrained youth that are out of school in the Marshall Islands, five hundred of which are listed by the District Office. It has also begun to deal with increasing the amount of copra produced by the Marshall Islands for export by arranging for many of these youth to harvest copra in atolls where it is not being currently gathered, and also by clearing these lands and replanting them with new and improved varieties of coconut trees.

MARSHALLS TRAINING CORPS  
ONE YEAR BUDGET

CATEGORIES		ESTIMATED COSTS	
I. Capital Costs	Equipment	100,000	
	Tools	60,201	
	Subtotal		
II. Pay and Allowance	Director	12,000	
	Assistant Director	4,800	
	2 Cooks	4,800	
	2 Clerk/Secretary	7,200	
	16 Teachers	74,400	
	180 Youth Stipends	288,000	
	24 Copra Operators	28,800	
	Fringe Benefits	19,800	
Subtotal		439,800	
III. Current Expenses	Consumable Supplies	1,600	
	Travel	9,000	
	Ship Operations	145,900	
	Food	109,500	
	Subtotal		
Total Program Cost			705,001

## INCLUSIVE APPRENTICE PROGRAM

A fundamental requirement for the economic recovery of the Marshall Islands is an able and innovative labor force which is motivated toward excellence. The inclusive apprenticeship program is designed to develop and expand such manpower resources in the islands by creatively engaging local young people between the ages of sixteen and twenty-six in helping to shape their society, and by providing them with vocational and leadership skills. The apprenticeship program is a year-long, on-the-job training process carried on within community businesses and institutions participating in the Small Industries Program. It will create a work force for the ongoing tasks of building and maintaining Marshallese communities and will provide local labor for special projects, general construction and business management. With the expanded economic activity in the islands through the MHDP, this program will meet expanded labor needs and release the potential capabilities of the Marshallese to participate successfully in their own future.

The program integrates vocational training for youth with those practical skills which are needed immediately to develop the community economy. First, an in-service training program will engage youth in community service and commercial activities. As youth receive practical job experience, local businesses will benefit by increased numbers of trained personnel. Secondly, vocational skills training will be offered in arenas which are key to future economic development: education, business management, agriculture, fishing, manufacturing and construction. Employee management development will be undertaken by Marshallese supervisors. Teams of employees and supervisors will function as task-related units holding regular planning and reviewing sessions. The team structure will provide a comprehensive method for skills training and will offer many opportunities for leadership development. Finally, the graduate placement service will conduct consultations to discern the varied options, including advanced training, open to apprenticeship grads.

The Apprenticeship Program has been used to train workers in the preschool, small industries and businesses over the last two years on a small scale. Fifty apprentices have been employed in the Multi-Purpose Repair Center and the Small Industry Program alone. Several of the apprentices have gone to trade schools outside the Marshall Islands and have returned to be employed locally. This program can be readily expanded with funding and it is crucial to building the knowledge and skills among Marshallese young people in order to sustain industrial and economic development by the Marshallese people.

INCLUSIVE APPRENTICESHIP PROGRAM  
ONE YEAR BUDGET

	CATEGORIES		ESTIMATED COSTS
I. Capital Costs			
		Subtotal	
II. Pay and Allowance	18 Associates in-training	64,800	
	36 Supervisors in-training	43,200	
	216 Apprentices	103,380	
	Consultant Services	72,000	
		Subtotal	
III. Current Expenses			
		Subtotal	
Total Program Cost			283,380

## COPRA LAGOON SYSTEM

During the past year the Trust Territory exported over 7,000 tons of copra. Despite the fact that 51% of this crop was produced by the Marshalls District, few places harvested more than 20% of the full copra potential. The Copra Lagoon System will dramatically alter this situation by shifting the general trend of under production and by tapping, for the first time, the untouched fruits of the uninhabited atolls. It is projected that within eighteen months copra production will triple. Moreover, the Lagoon System will open up new employment, supply needed goods and revenue to the outer islands and significantly accelerate cash flow throughout the district.

The Copra Lagoon System is comprised of four elements. First, a series of atoll and outer island stores will be established. The stores will buy harvested copra from all islets in the atoll, store it for pick-up, and also sell merchandise to the people. Second, a six lagoon boat fleet will be acquired to regularly collect copra from the islets and bring it to the lagoon warehouses. Third, to accomodate the expanded activity, a warehouse barge system will add warehouse and dock space. One warehouse will be stationed at Majuro; the other five will be located at the highest copra producing atolls. Finally, two field trip vessels will stop bi-monthly at each atoll to collect copra and to bring merchandise for sale. In this way, more goods will be provided for the poeple and copra revenues greatly increased.

The first requirement for an expanded production of copra in the Marshall Islands is the Copra Lagoon System. The building of warehouses and stores and the providing of small boats to transport the copra within the lagoon is essential to increased production. The research for this program has been done and plans are now underway to take the sawmill to Ebon to produce lumber and construct the first warehouse. At least a 20% increase in production could be expected simply by having these facilities available on the outer islands thus making the storage and the lagoon transportation of the copra possible which are the two major blocks. This would be the fastest way to bring more capital into the Marshall Islands.

COPRA LAGOON SYSTEM  
ONE YEAR BUDGET

CATEGORIES		ESTIMATED COSTS	
I. Capital Costs	1 Field Trip Ship	140,000	
	6 Lagoon Boats	42,000	
	Training 20 Men	6,000	
	Warehouse Construction	56,000	
	6 Warehouse Barges	63,000	
Subtotal			307,000
II. Pay and Allowance	Director	12,000	
	Assistant Director	6,000	
	2 Secretary/Bookkeepers	7,200	
	20 Store Managers	96,000	
	Fringe Benefits	18,180	
Subtotal			139,380
III. Current Expenses	Travel (set-up)	10,000	
	Consumable Supplies	381,820	
Subtotal			391,820
Total Program Cost			838,200



## THE DEMONSTRATION LAND FARM

Nine thousand acres (95%) of usable farmland today is engaged primarily in the basically unplanned production of coconuts. A wide range of crops for local consumption can be grown on this land. During the Japanese years, this land produced abundant vegetables for the people of the islands, and even for export to Japan. The Demonstration Land Farm will catalyze intensified usage of farm lands by reintroducing the planned production of a wide variety of desired foods. Tropically adapted fruits and vegetables with high year-round yields will be emphasized. This intensified agricultural production will cut the capital drain from the islands substantially by reducing the imports of food products. The nutritional standards, especially of the outer islands, will be substantially upgraded by increased protein production.

The Demonstration Land Farm is an integrated program of expanded crop production which will catalyze the radical expansion of agricultural production. The demonstration farm plots will introduce new vegetable crops and upgraded varieties of traditional crops. Incorporation of traditional wisdom with new technology in mulching, fertilizing, and land management, and creation of a pool of appropriate farm machinery will enable the crucial task of land development and proper soil preparation. Extensive soil studies will be carried out in relation to the intended crops in order to build up and maintain arable land for long-range optimal crop production. A farmer's cooperative program will provide the purchasing and marketing services needed by an expanding agriculture.

The Demonstration Land Farm has been in existence almost a year, having completed its research and experimentation on a two and a half acre plot. It is now producing commercial-sized cabbage and corn which is marketed regularly in Majuro and increasing the acres for cultivation. The Demonstration Land Farm in Majuro is now ready to be more widely tested on the Wotje Atoll. There is a possibility of expanding the beginning farming that is going on there to supply vegetables for Majuro and Kwajelein and for export to the rest of Micronesia. Research needs to be conducted on the possibility of raising rice on the Kili Atoll, which, at first examination has the acreage and rainfall to produce enough rice to supply all of the needs of the Marshall Islands. Expansion of this program will require seeds, fertilizer and farming equipment, as well as experts to conduct and analyse the experiments and share the results with the farmers across the Marshalls.

DEMONSTRATION LAND FARM  
ONE YEAR BUDGET

CATEGORIES		ESTIMATED COSTS	
I. Capital Costs	Horticulture Experiment	21,000	
	Equipment	53,000	
	Subtotal		
II. Pay and Allowance			
	Subtotal		
III. Current Expenses			
	Subtotal		
Total Program Cost			74,000

## SMALL INDUSTRY PROGRAM

The Small Industry Program is designed to expand the economic base of the Marshalls through the injection of capital funds and the increased turn-over of those funds within the islands. It will serve to encourage private citizens to work cooperatively to invest in the development of the Islands. It will be concerned with promoting untried business and production possibilities; and it will move to reduce the current 9 to 1 imbalance of trade. The expansion of present business enterprises and the development of new small industries will provide Majuro and the outer islands with a variety of arenas in which people can receive and utilize practical training.

The program concentrates on developing four related arenas in its concern for expanding present business enterprises and initiating new small industries in the islands. First is the task of new resource development. The research of indigenous raw materials such as coral and shells will open new possibilities. Second is small business development. Several of these could begin within the first year; a plant to produce prefabricated construction materials; a multi-use cannery; a general plastic manufacturing company; and a local metal works shop. These industries are not related to making large profits but are intended to provide jobs, services and goods for local use. A third new industry is the assembling of components. Small parts will be shipped to the Marshalls where they will be assembled and the finished product exported. Fourth is the production, promotion and export of traditional arts and handicrafts through encouragement of cottage industries.

Seven small industries are now functioning, employing forty to fifty people. These industries are in need of more equipment to increase their production so they can meet all of the demands for their goods. Additional small industries have been researched and are ready to begin implementation. There is also interest in further researching an additional industry for each of the outer atolls so that they would have products to bring in cash besides the copra that they produce. Expansion of the small industry program is also necessary to supply additional jobs for an increasing population that is unemployed. (Work will begin immediately to develop requests for federal funding to begin some businesses and to sustain necessary research.) Additional grants and a series of small business loans will be required as the program moves toward actualization. Training of local people in this type of planning and development will be carried out in close relationship with the managerial staff of TASC and the Business School. Volunteer business consultants will be secured to spend a week to three months in the islands to lend their expertise in various fields. The ICA will serve as practical research consultants assisting in obtaining essential funds.

SMALL INDUSTRIES PROGRAM  
ONE YEAR BUDGET

	CATEGORIES		ESTIMATED COSTS
I. Capital Costs  1	Office Equipment	3,500	
	Canning Machinery	22,000	
	Fish Meal Processing Equipment	30,700	
	Coconut Extraction Equipment	14,800	
	Saw Mill Machinery	29,000	
	Assembly Plant Equipment	43,200	
	Ice Plant Equipment	10,000	
	Subtotal		
II. Pay and Allowance	Director	10,000	
	Assistant Director	6,000	
	2 Secretaries	8,000	
	Fringe Benefits	2,700	
	Consultant Services	14,000	
	Subtotal		
III. Current Expenses	Travel	14,000	
	Space	4,000	
	Consumable Supplies	1,050	
	Operating Expenses	3,500	
	Subtotal		
Total Program Cost			216,450

## MARINE FARM

The Marshalls are an ocean nation which in recent times have harvested little from the sea, yet the ocean offers tremendous potential with 95% of the land and shelf area of the islands being protected lagoon waters. These lagoons offer a wide range of conditions for maricultural applications, from totally protected land-locked pools to near open-sea conditions on the shelves in the many passes. The Marine Farm Demonstration program is designed to establish several plant and animal species on the islands for which there is a substantial export market. Both the establishing and operation of the selected maricultural practices will be packaged such that they can be readily learned by the Marshallese people.

In order to introduce maricultural systems into the Marshall Islands, an extensive Aqua-environmental Assessment will be necessary. This first component of the program will analyze the chemical and biological content of the lagoons to determine the adaptability for growing stock. The second component is the Species Supply program. The initial crop can possibly be the red algae, *Eucheuma*. Once established, the culture will be culled regularly for stock improvement and seed stock for expansion purposes. Third, half-acre Demonstration Mariculture Plots for each algal crop will be located initially on the Majuro atoll. Areas will be selected and prepared for animal species. The fourth component is the Marine Marketing Agency. Markets will be identified and developed, transportation costs and import-export restrictions researched. All local use and export will be transacted by the agency.

The Marine Farm will require appropriate ocean tidal and climatic conditions and extensive species analysis. Marine biologists, with the assistance of the UNFAO, the U.S. National Sea Grant program and independent agencies will determine the crop potential for the selected waters. Once the appropriate location has been selected, species may be selected and acquired. These will be located in distinctly marked plots where they can be tended and be isolated from predators and infiltration by alien species. Finally these will be harvested, processed and marketed. Marketing research will locate buyers, negotiate costs, handle import-export regulations and where appropriate, arrange for local retailing.

MARINE FARM DEMONSTRATION  
ONE YEAR BUDGET

CATEGORIES		ESTIMATED COSTS	
I. Capital Costs	Office Furniture	1,200	
	Equipment	22,000	
	Larvel Rearing Facility	18,900	
	Holding Enclosures	10,000	
	Boat and Motor	3,000	
	Seed Stock Procurement	5,000	
	Initial Market Support	10,000	
	Subtotal		
II Pay and Allowance	Director	12,000	
	Assistant Director	6,000	
	Secretary	1,500	
	16 Trainees	800	
	Fringe Benefits	3,045	
	Consultant Services	3,000	
	Subtotal		
III. Current Expenses	Travel	7,000	
	Space	1,200	
	Consumable Supplies	2,750	
	Subtotal		
Total Program Cost			107,395

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## INTER-ISLAND FERRY SYSTEM

The Inter-island Ferry System is foundational to every other program in the development model and to the project as a whole. The advantages of a ferry system to the development of the Marshallese are obvious: it will reduce the movement of people to the District Center, which is already overcrowded; it will strengthen effective district administration; it will facilitate the operation of the Nitijela; and it will make the "subdistrict concept" into an operational reality. The Ferry System is the key to district-wide economic development and will provide a viable means by which the Marshallese people can build a common future together in Micronesia. In removing the isolation which has traditionally blocked programs of health, education and social welfare, it will redirect the practical shape and destiny of the previously remote outer islands.

The Ferry System must be efficient and inclusive from its inception. First, an all-weather fleet capable of functioning in heavy Pacific waters will provide the backbone of the system. Four of these vessels will be in service at a time; one will be held in reserve for emergency and maintenance. Second, the Cruise Operation Corps comprised of trained Marshallese will man the system and perform routine maintenance. Third, auxiliary inter-island communications will provide a radio link, allowing the interchange of information and requests for emergency and charter service. Finally, a twenty-four hour transport system will be initiated as soon as lagoon channel lights are installed to illuminate the entrance points of the atolls.

Implementation of the Ferry System will begin with the obtaining of a small ship. This craft would be used in checking routes, timing and loading facilities; in selecting land personnel; and in surveying the copra potential on the outer islands. The assistance of the Department of the Interior will be required during the first year to provide engineers and a trained mechanic to oversee maintenance and accelerate the installation of channel lights. Minimal rates will be set in consultation with the district office; then schedules will be designed and financial arrangements secured. Finally, employment, training and supervision of personnel will be initiated, and apprentices selected and assigned. An inter-island ferry service is a critical need at present to the future development of the Marshall Islands. At this time two of the field trip ships are out of commission, repairs being too costly to return them to service. The traffic of trade goods, passengers and copra is being greatly diminished from an already inadequate system which handicaps both the motivation for development and the practical ability to carry forth what is needed to develop the Marshall Islands economically and socially. Further research has been done toward finding boats at lower cost and getting a maximum value for scrap metal on the boats that are presently unusable. With funding, ships can be acquired and the ferry service begun.

INTER-ISLAND FERRY SYSTEM  
ONE YEAR BUDGET

	CATEGORIES		ESTIMATED COSTS
I. Capital Costs	Refitting Cost	30,000	
	Delivery Cost	40,000	
	5 Ferry Boats	430,000	
	Subtotal		
II. Pay and Allowance	Manager	12,000	
	Assistant Manager	6,000	
	2 Clerk/Secretaries	7,200	
	5 Shore Agents	24,960	
	15 Apprentices	9,000	
	15 Vessel Operators	69,000	
	Fringe Benefits	19,224	
	Consultants	6,000	
Subtotal		153,384	
III. Current Expenses	Consumable Supplies	166,030	
	Maintenance and Parts	12,000	
	Lightering Service	25,000	
	Promotion	3,000	
	Vessel Rental	5	
Subtotal		206,035	
Total Program Cost			859,419



## DEMONSTRATION HOUSING PROJECT

The Demonstration Housing Project is designed to meet the people's desire to combine traditional architectural style with the economic and constructional advantages of modern building techniques. At one time the style of Marshallese housing and the community space design arrangement reflected an ingenious and artistic adaptation of local materials. Today, that artistry needs to be duplicated in such a way that sanitation and water catchment problems are cared for, health hazards reduced, and adequate housing is made possible for all residents of the islands. Because the project aim is to provide well-serviced houses through both traditional and modern low cost building materials and methods, it will provide an occasion for investigating the development of alternate local resources. The people of the community will participate in creating the design and selected families will demonstrate the feasibility of the new living space.

A comprehensive design is the first component of the housing project. An architect will consult with community people to forge a practical plan for the housing best suited to the environment and the values of the people. Second, an initial twelve units will be built. These will honor traditional living and land-use patterns as well as illustrate inexpensive, modern building methods. Third, an integral part of this program will include the development and installation of appropriate sanitation and water catchment systems. Fourth, alternate sources for building materials, energy and maintenance will be researched and incorporated into the project. This will include the possible use of sun and wind for energy; indigenous building materials such as thatch, and supplies that can be manufactured inexpensively on the islands. Not only will the demonstration housing be of immediate residential use, but it will have practical creative effect upon other aspects of the community life.

The Demonstration Housing Project is now ready to go forward with the advent of treated coconut lumber. This wood, when used according to the architects' design, can construct a house with four rooms having separate toilet and kitchen facilities for under \$6000.00. The treated coconut lumber is both durable, attractive, and, because of design possibilities, a variety of choices can be made to suit the taste of the people. Such houses could be constructed rapidly on the outer atolls at a very low cost by moving the portable sawmill to supply the basic materials, and by employing the local labor to build the houses.

DEMONSTRATION HOUSING PROJECT  
ONE YEAR BUDGET

CATEGORIES		ESTIMATED COSTS	
I. Capital Costs	Equipment	5,000	
	Construction of 12 units	54,000	
	Practical Research Material	10,000	
	Subtotal		
II. Pay and Allowance	Research Architect	25,000	
	Research Contractor	20,000	
	Research Assistant	12,000	
	Consultant Fees	10,000	
	Subtotal		
III. Current Expenses	Travel	10,000	
	Space	1,800	
	Consumable Supplies	1,200	
	Subtotal		
Total Program Cost			149,000