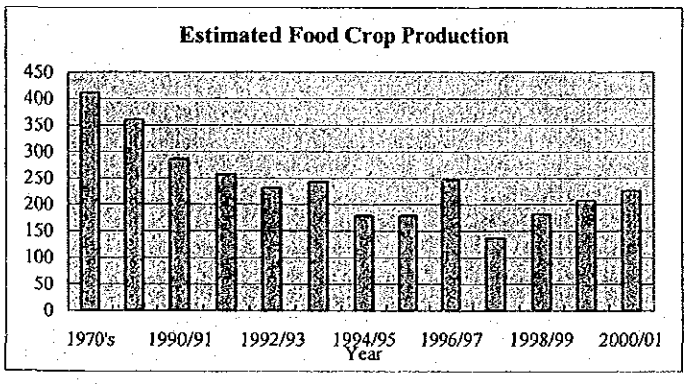
CHAPTER 2 PRESENT CONDITIONS OF DEMAND AND SUPPLY OF STAPLE FOOD

2.1 Introduction

The major cereal that is grown in Zanzibar (which consists of Unguja and Pemba islands) is rice, which is produced mainly for local consumption. Other major food crops are cassava and bananas. In general there is a wide range of crops produced for local markets and apart from rice, cassava, and bananas, other crops grown include peas, sweet potatoes, pumpkins, maize, coco-yams, fruits and vegetables. Millet and maize are grown at a very small scale in isolated areas, and these are usually for the producer's household consumption. Farming to a large extent is for subsistence although some surplus production of rice, cassava, and bananas find their way into the local markets. Zanzibar imports most of its additional foodstuff requirements from mainland Tanzania, especially fruits, cereals, legumes and vegetables. The rest of its food requirements are obtained from abroad, wheat flour being one of them. Imports have been increasing annually due to growth in demand and low production capacity in agricultural products. The private sector is also the sole importer of food.

2.2 Food Deficit

Zanzibar was traditionally able to import sufficient food when there were shortages in domestic production. However, this situation changed because of declining foreign exchange in the economy, increasing prices of import commodities, population growth and increasing decline of agricultural productivity. The food crop production has been declining from 60% of its contribution to food supply in 1970 to 42% in 1980 and to less than 35% in the 1990's, mainly due to decrease of farm land by population pressure. The table and figure below show the estimated annual cultivated area and production of food crops in Zanzibar fron19970's to 2000/01.



Estimated Food Crop Production

Years	Production 1,000 tons
1970's	411
1980's	361
1990/91	286
1991/92	257
1992/93	231
1993/94	243
1994/95	179
1995/96	179
1996/97	246
1997/98	136
1998/99	182
1999/00	208
2000/01	226

1970's: 8 years average
1980's: 10 years average
Source: Food Self-sufficiency in Zanzibar 1996, Status of Irrigation Development in Zanzibar-2001, Statistic Bureau of Zanzibar

The production figures include rice, cassava, maize, sorghum, millet, bananas, sweet potatoes, yams, pulses. The steady decline in domestic food crop production over the past 20 years is apparent from above table.

In terms of food imports, rice, wheat flour and sugar are the major imported food of Zanzibar. The table below shows the total imports of these commodities fluctuated around 40,000 to 70,000tons per year from late 1980's to 1994 except 1989 and 1990. Food trade of Zanzibar is liberalized, and Zanzibar imported about one-quarter of its staple food supply from the 1991, unlike the Tanzania mainland for whom a much higher degree of self-sufficiency is a realistic objective.

Total Import of Major Foods

(Unit: ton)

Year	Rice	Wheat	Sugar	Re-export	Total
1984	33,300	6,000	3,000		42,300
1985	36,700	12,000	11,500		60,200
1986	40,000	12,000	8,000		60,000
1987	29,400	12,300	6,000		47,700
1988	26,000	15,000	12,200		53,200
1989	15,000	3,950	5,772		24,722
1990	5,995	1,436	3,030		10,461
1991	33,425	14,530	13,400		61,355
1992	44,515	5,423	1,545		51,483
1993	37,129	23,031	10,560	8,999	61,721
1994	59,748	16,625	15,545	17,514	74,404

Source: Food Self Sufficiency in Zanzibar, 1996

Rice is major staple food crop in Zanzibar. Changes in total rice supply amount consist of domestic production and imports are shown in the table below. The production has fluctuated over the ten years period, and any significant increase in rice production has not been achieved, too. At

present 15,600 ton of rice are produced and 80,000 ton of rice is imported yearly to meet the deficit. Thus, the rate of self-sufficiency of rice is less than 20% in recent years.

Supply of Rice in Zanzibar

Year	Production (ton)	Import (ton)	Consumption (ton)	Dependency Ratio (%)
1984/85	13,122	33,300	46,422	0.28
1985/86	10,162	36,700	46,862	0.22
1986/87	5,273	40,000	45,273	0.12
1987/88	13,234	29,400	42,634	0.31
1988/89	13,371	28,000	39,371	0.34
1989/90	11,623	20,200	31,873	0.37
1990/91	7,921	18,678	26,599	0.30
1991/92	73,18	33,425	40,743	0.18
1992/93	10,127	44,515	54,642	0.19
1993/94	7,598	32,900	40,498	0.21
1994/95	8,800	52,078	60,878	0.14

Source: Food Self Sufficiency in Zanzibar, 1996, Status of Irrigation Development in Zanzibar, 2001

Table 2.2.1 shows the rate of child malnutrition according to place or region (Tanzania Demographic and Health Survey, 1996). Although three different indexes (rate of moderate stunting, wasting and underweight) are shown in the table, the moderate stunting is fit to evaluate the nutritional status because the measure is less affected by seasonal and annual variation.

Children in Zanzibar are more likely to be underweight and suffer from wasting compared to children in the mainland as shown in the below table. According to the other report (MALER FAO 1999), approximately 50 percent of Zanzibar children under 5 years old suffer from malnutrition and 20 percent of children in the rural areas are severely malnourished.

Malnutrition Status of Children

Region	Moderate stunting (%)	Moderate Wasting (%)	Moderate Underweight (%)
Mainland	43.6	7.1	30.5
Total Urban	32.9	7.6	19.5
Total Rural	45.9	7.0	32.9
Zanzibar	37.1	11.0	33.8

Source: Bureau of Statistics (Tanzania) and Macro International Inc (1997a)

2.3 Per Capita Calorie Intake

The main staple foods in Zanzibar are rice, cassava, banana, maize, sweet potato and yams. An average per capita consumption of staple foods is not studied recently. Any in-depth surveys or studies on food

consumption were not undertaken.

Once, a survey for demand forecasting of rice was carried out by FAO mission in 1980. After that, any demand forecasting surveys for other important staple foods are not done until now. However, 1992 food need assessment estimates have been adopted as shown Table 2.3.1 and summarizes in a table below.

Per Capita Consumption for Zanzibar

Commodity	Kg/year/person (Unmilled)
1. Maize	24
2. Rice	90
3. Wheat	37
4. Sorghum	-
5. Millet	-
6. Pulses	26
7. Cassava	89
8. Bananas	109
10. Potatoes	56

Source: Food Need Assessment in 1992

Based upon the existing per capita consumption, the per capita calorie intake of Tanzania (Mainland) and that of Zanzibar have been worked out respectively, the result of which is shown in the table below. The calculation result closes to the estimation value of FAO as well as the result of recent house-hold survey in the Tanzania, which supports the general validity of the estimated value obtained this time. It is guessed that since people in Zanzibar has fewer amounts of per capita calorie intake than people in Mainland, the nutrition status of people in Zanzibar is worse than that of people in Mainland.

Comparison of calorie intake of subject regions

Source			
FAO The State of Food Insecurity in the World 2001	HBS	Estimated from the average per capita consumption, Tanzania (M)	Estimated from the average per capita consumption, Zanzibar
Kcal/person/day			
2,100 ('90-'92) 1,930 ('97-'99)	2,200	1,865 (Staple food product only) *1 2,235 (Estimated calorie intake)	1,793 (Staple food product only)*1 2,163

FAO、HBS data concerns calorie intake of all the food, while estimate this time has been obtained from the figures concerning staple food only

*1This figure, when added to the 370Kcal/perspn/day that has been estimated from the data of 2010 world agriculture prepared by FAO, is supposed to constitute the estimated amount of all the intake.

According to the state of food insecurity in the world 2001 prepared by FAO, it is understood that the condition of food in countries around Tanzania is in a very strained state as summarized below. Besides one can easily perceive that an improvement of that particular state is hard to be expected even as the years go by. The condition of food supply in Tanzania is worse in 1997-1999 than in 1990-92, as shown in the table below, with the estimated percentage of people in malnutrition reaching as much as about 46% of the entire population.

Comparison Table of the Condition of Food Supply in some African Countries

Country	Total Population		Per Capita Dietary Energy Supply		Number of People Undernourished		Proportion of Undernourished in Total Population	
	1990-92	1997-99	1990-92	1997-99	1990-92	1997-99	1990-92	1997-99
	(millions)		(kcal/day)		(millions)		(percentage)	
Tanzania	27.0	33.5	2,100	1,930	9.1	15.5	34	46
Kenya	24.3	29.4	1,880	1,930	11.5	13.4	47	46
Uganda	17.8	22.0	2,280	2,190	4.2	6.2	24	28
Malawi	9.6	10.7	1,880	2,120	4.8	3.8	49	35
Mozambique	14.1	17.6	1,710	1,920	9.6	9.5	69	54
Zimbabwe	10.5	12.2	2,010	2,080	4.6	4.8	43	39

Sources: Total population: UN World Population Prospects, 2000, revision, dietary energy supply and undernourished in total population: FAO estimates.

During the course of the survey this time, we obtained a material supporting figures in the above table. According to the survey made in 1993 (Sarries and Tinios) , when the intake of 2,000 kcal is set as the uppermost of the poverty line, 50% of the people of Tanzania will be classified into the poverty group. Also, the survey of citizen conducted in 2000-01 resulted in revealing the estimated calorie intake obtained from the pattern of food intake of the poorer half to be 2,200 kcal. Based upon the FAO report and the results of the above two surveys, it is clear that in Tanzania almost half of its people is in a state of malnutrition, being classified into the poverty group, with the calorie intake of about 2,000 kcal, or the lowest possible level for an adult.

CHAPTER 3 DEVELOPMENT STRATEGY

3.1 Food Policy for Irrigation Sector

From a macroeconomic view, it might look more economical to import food than to produce it domestically, but from the point of microeconomic view, or rather from the point further down, that is to say, from the viewpoint of rural community, villages, as well as farmers, it is apparent, from the results of various studies and surveys, that there are cases to which the logic can not be applied.

It is obvious that there is a close relation between alleviation of poverty and agricultural activities in the area where the agriculture creates employment opportunity. Especially, the rural areas where agriculture activities are prevailing, show the closest relation. The agricultural development being capable of providing both food and income to the poor, will surely play an important and straightforward role for the alleviation of poverty in rural villages.

In the poor villages of Zanzibar, the one and only way of achieving the improvement of food conditions (the achievement of self-sufficiency) and the securing of income (sales of surplus agricultural products and promotion of the sales of cash crop), which are the two main challenges of the country, is the vitalization and continuous improvement of the industrial activity called agriculture by making effective use of existing resources. MANREC (Ministry of Agriculture, Natural Resources, Environment and Cooperative) , in particular, is expected to be effective as a measure for stable food supply as well as stable source of income, capable of realizing much-desired alleviation of poverty.

When the efforts for the development are made, putting maximum priority on the macro-economical efficiency without taking into consideration the narrowing of the gap between the rich and the poor, the poor will always remain as they are and the gap between the haves and have-nots will ever increase with the resultant distorted, lopsided social structure. The result of the survey shows that a trend of malnutrition (denutrition) can be seen in religions located in farm belts where a large amount of food is produced, which suggests the existence of poor people unable to buy food even though they can find it in the market. A lopsided society is definitely on the way.

As shown in the estimate of per capita caloric consumption, it is necessary in Tanzania to try to secure a stable supply of staple food with the improvement of nutritional state of the people in mind. It is not inevitable to try and secure the stable supply only through the enhancement of domestic production. Food import should naturally be taken into consideration from the point of adequacy of food variation as well as from the point of economy. However, in Zanzibar, since there are restrictions of various resources and it is judged that achievement of self-sufficiency of staple food crops is impossible, import of staple-food crops is inevitable. The irrigation development should be undertaken with careful attention to more efficient and valuable target, when the peculiar character of Zanzibar is taken into consideration.

3.2 Demand Projection

3.2.1 Basic Assumption for Staple Food Demand Forecast

The main staple foods in Zanzibar are rice, cassava, banana, maize, sweet potato and yams. An average per capita consumption of staple foods is not studied recently. Any in-depth surveys or studies on food consumption were not undertaken.

As mentioned in section 2.3, a survey for demand forecasting of rice was carried out by FAO in 1980. Although any demand forecasting surveys for other important staple foods have not been done thereafter, food need assessment estimates were made in 1992. The results are as shown Table 2.3.1 and summarizes in the below table.

Per Capita Consumption for Zanzibar

Commodity	Kg/year/person (Unmilled)
1. Maize	24
2. Rice	90
3. Wheat	37
4. Sorghum	-
5. Millet	-
6. Pulses	26
7. Cassava	89
8. Bananas	109
10. Potatoes	56

Source: Food Need Assessment in 1992

An estimate of expected demand for staple food products was made by the study team, as part of the survey this time, in order to evaluate the possibility of self-sufficient food production in Zanzibar, to clarify the positioning of irrigation sector in the overall agricultural development, and,

among others, to examine the relevance of the reinforcement and promotion of irrigation sector from the point of food supply.

The following conditions have been set up in making the demand forecast.

Estimate of basic demand:

In the Study, a demand estimate for staple food products was made again using the currently available data, to clarify the positioning of irrigation sector in the overall agricultural development, and to examine the relevance of the reinforcement and promotion of irrigation sector from the point of food supply. The assumption employed in the estimate is to keep the current pattern of food intake of 2,160 kcal in the future.

3.2.2 Staple Foods Demand Forecast

In accordance with the scenario set in the above, the future demand of staple food products has been assessed. The result is shown in Table 3.2.1, the summary of which is as follows:

Staple Foods Demand Forecast

(Unit: ton)

	Year			
	2005	2010	2015	2020
Maize	25,927	30,371	35,652	41,939
Rice	97,226	113,695	133,695	157,270
Wheat	39,971	46,822	54,964	64,656
Sorghum				
Millets				
Pulses	28,088	32,902	38,623	45,434
Cassava	96,146	112,626	132,210	155,523
Bananas	117,752	137,935	161,920	190,472
Potatoes	60,496	70,866	83,188	97,857

Source: JICA study team estimated based on the population forecast and per capita consumption in Zanzibar.

In spite of a rather pessimistic assumption with calorie intake kept at the current level, the pressure from the increased population would require a high rice demand of 8.5 times the current production of 18,500 tons in 2000/01.

It can be said that these figures would never be achieved without a suitable strategy and a program to implement the same. Judging from the availability of natural resources in Zanzibar, it is difficult or rather impossible to meet the self-supply in these foods. In such severe situations, however, it is important to increase the food production as much as possible through maximum use of available national resources, to decrease the import amount in foods and to save foreign currency used for

import of foods.

The future increase in population and the subsequent need for increased food production in Zanzibar (Unguja Island and Pemba Island) and accelerated urbanization will make it possible to have staple food products distributed as commercial products. In order to realize an efficient use of land resources and water resources so that food products would be distributed efficiently, it is important to draw up and implement effective plans, in cooperation with other sectors, concerning the improvement and maintenance of roads and marine transportation as well as the improvement of marketing system.

Table

Table 2.2.1 Nutrition Status of Children in Tanzania and Zanzibar

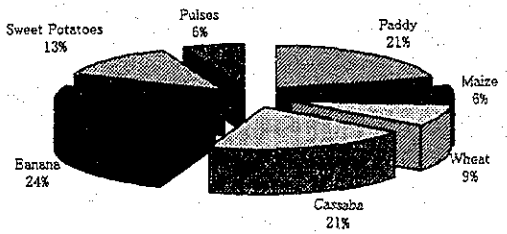
Region	Moderate Stunting (percent below 2.5 s.d. the median height for age) (%)	Moderate Wasting (percent below 2.5 s.d. the median weight for height) (%)	Moderate underweight (percent below 2.5 s.d. the median weight for age) (%)
Residence			
Mainland	43.6	7.1	30.5
Total Urban	32.9	7.6	19.5
Total Rural	45.9	7.0	32.9
Zanzibar	37.1	11.0	33.8
Region			
1 Arusha	43.7	7.2	35.1
2 Coast	51.7	11.2	34.3
DSM	30.6	8.1	22.2
3 Dodoma	48.1	8.0	34.2
4 Iringa	70.5	6.2	48.2
5 Kagera	41.6	10.8	36.0
6 Kigoma	52.5	7.6	43.1
7 Kilimanjaro	33.5	5.6	21.0
8 Lindi	58.6	7.0	41.4
9 Mara	32.6	8.4	18.9
10 Mbeya	46.9	6.2	20.8
11 Morogoro	52.7	4.1	25.5
12 Mtwara	58.0	5.9	35.6
13 Mwanza	33.8	7.6	27.0
14 Rukwa	42.0	9.7	30.5
15 Ruvuma	53.5	5.2	29.4
16 Shinyanga	31.3	6.8	27.8
17 Singida	38.6	7.0	28.4
18 Tabora	25.7	4.4	14.2
19 Tanga	55.3	4.9	36.2
Total	43.4	7.2	30.6

Source: Bureau of Statistics (Tanzania) and Macro International Inc (1997a)

Table 2.3.1 Food Crop Proportions Used to Estimate Requirements

Assumed Per Capita Consumption Rates for Main Subsistence Crops in Zanzibar (Un-milled)

Crops	Percapita consumption kg/Cap/year
Paddy	90
Maize	24
Wheat	37
Cassaba	89
Banana	109
Sweet Potatoes	56
Pulses	26



Source: Status of Irrigation Development in Zanzibar-2001, The Division of Agriculture, Rice Cultivation and Inputs, Commission of Agriculture, Research and Extension, Zanzibar

Zanzibar

	Unmilled kg	Edible kg	exclude loss kg	Kcal/ 100g	Total Kcal
Maize	24	21.6	19.7	335	66,065
Rice	90	60.3	58.8	335	196,955
Wheat	37	27.75	27.1	340	91,991
Sorghum				345	0
Millets				340	0
Pulses	26	26	25.4	320	81,120
Cassaba	89	30.26	30.3	320	96,832
Bananas	109	21.909	73.0	106	77,412
Potatoes	56	14.28	47.6	93	44,030
		202.1	282		654,405 Kcal/person/year
		554	g/day		1,793 Kcal/person/day

JICA Study Team Estimated based on per capita consumption data and population forecast

Table 3.2.1 Staple Foods Demand Forecast

(Unit: ton)

Zanzibar							2005	2010	2015	2020
	Unmilled	Edible	exclude loss	Kcal/	Total			Estimated population		
	kg	kg	kg	100g	Kcal	kg	1,080,294	1,265,463	1,485,504	1,747,449
Maize	24	21.6	19.7	335	66,065	24	25,927	30,371	35,652	41,939
Rice	90	60.3	58.8	335	196,955	90	97,226	113,892	133,695	157,270
Wheat	37	27.75	27.1	340	91,991	37	39,971	46,822	54,964	64,656
Sorghum				345	0	0	0	0	0	0
Millets				340	0	0	0	0	0	0
Pulses	26	26	25.4	320	81,120	26	28,088	32,902	38,623	45,434
Cassaba	89	30.26	30.3	320	96,832	89	96,146	112,626	132,210	155,523
Bananas	109	21.909	73.0	106	77,412	109	117,752	137,935	161,920	190,472
Potatoes	56	14.28	47.6	93	44,030	56	60,496	70,866	83,188	97,857
		202.1	282		654,405	Kcal/person/year				
		554	g/day		1,793	Kcal/person/day				

Source: Status of Irrigation Development in Zanzibar-2001, The Division of Agriculture, Rice Cultivation and Inputs, Commission of Agriculture, Research and Extension, Zanzibar

Appendix F

Irrigation Development Programme

THE STUDY
ON
THE ZANZIBAR IRRIGATION MASTER PLAN
IN
THE UNITED REPUBLIC OF TANZANIA

MASTER PLAN

APPENDIX F

IRRIGATION DEVELOPMENT PROGRAMME

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APPENDIX F

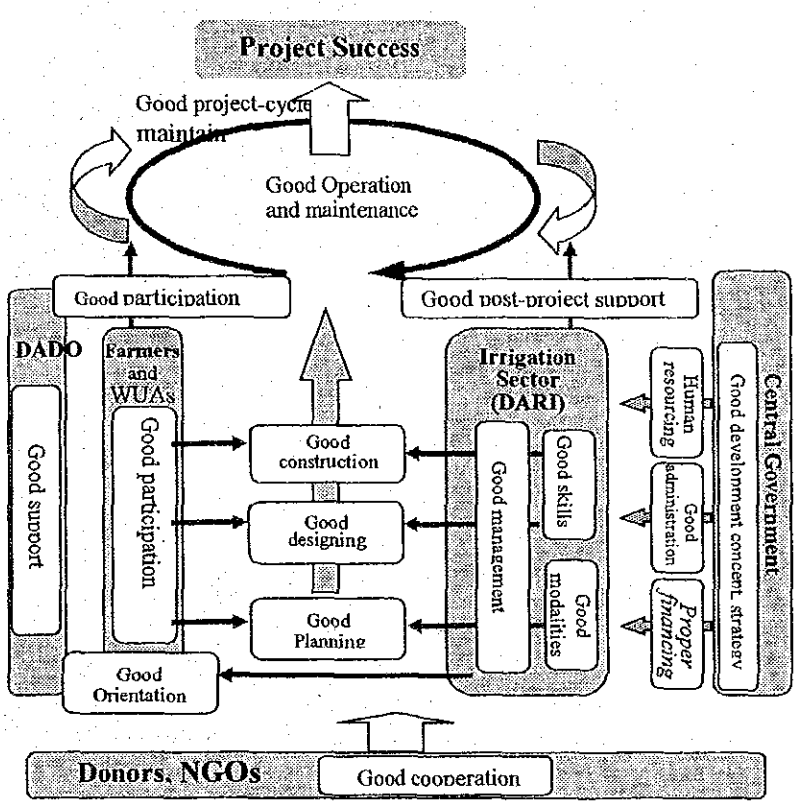
IRRIGATION DEVELOPMENT PROGRAMME

CHAPTER 1 SUBJECT-WISE IMPROVEMENT PROGRAMME

1.1 Outline of Subject-wise Programme

Irrigation schemes shall succeed by good performances in whole circumstances surrounding irrigation development as following schematic figure: Failures of schemes are not always caused by separated problems but breaking off of linkage between related actors.

Required Good performances
in Whole Circumstances Surrounding Irrigation Project Success



In order to promote irrigation development effectively and to sustain its operation, the system of project cycle management which includes processes in project implementation and operation, should be streamlined as a linked chain.

Scope of irrigation development in Zanzibar might be far from a business on large

scale. Management system for irrigation development requires to be compactly in a small scale. The Subject-wise Improvement Programme is a series of arrangements to improve the management system, which is definitely necessary to succeed scheme implementation and its operation. The Subject-wise Improvement Programme would be thus formulated at conservative level to meet most insistent requirements taking the development scope into consideration.

1.2 Formulation Procedure

"Demand driven" and "Consistency in the whole undertakings" are put as the basic principles for the formulation of the Subject-wise Improvement Programme in the ZIMP.

To attain the "Consistency in the whole undertakings", a rational task flow and close linkage between interested parties for irrigation development is considered. A general view of the task flow and linkage between parties concerned was shown in the figure "Required Good Performances in Whole Circumstances Surrounding" in the above Sub-clause. Consistency in the series of components proposed herein is carefully secured continuously keeping the conceptual feature shown in the figure in mind.

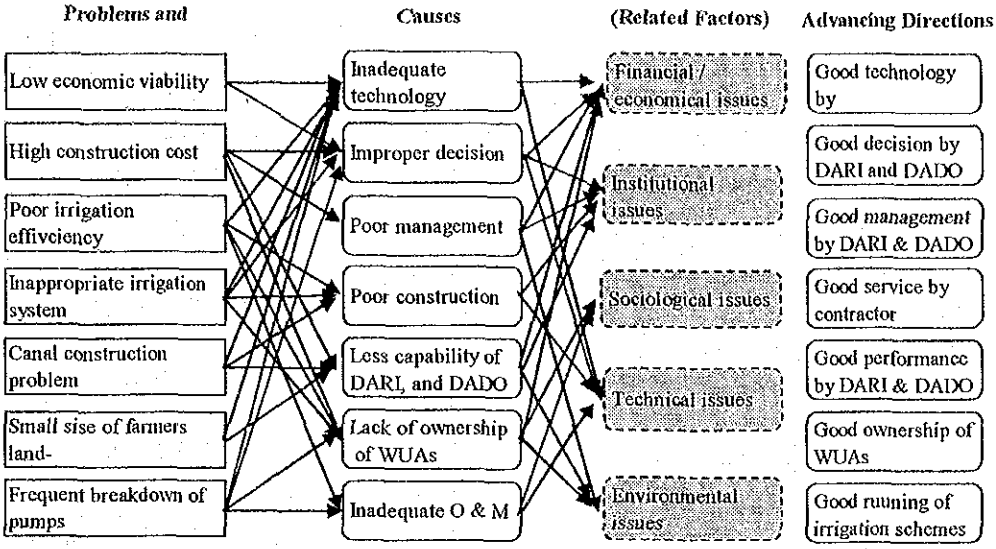
To attain the "Demand driven" soundly and to achieve the formulation without any substantial omissions, every valid results obtained through investigations inquired into problems and constraints are to be reflected into. Although the ZIDP was not perfect plan for immediate implementation, identification of problems and constraints are considerably implied. Demands to be improved come out on the basis of those problems and weakness unveiled previously.

1.3 Components of Subject-wise Programme

Problems and constraints identified in those investigations are seemingly complicated and sometimes duplicated each other

In order to lighten its complications, all significant problems and constraints identified were classified into several advancing directions of subjects, namely, "for good technology held in IS", "for good decision done by IS", etc. Relations between the identified problems, causes and those advancing directions are summarized in the following figure:

Ralation between Problems/Constraints and Advancing Ditrections



The advancing directions are sub-divided into several themes at the process of irrigation development, namely, "Investigation and Survey", "Scheme Selection", "Planning", and "Designing". In this respect, many numbers of themes are distributed on the texture between the directions and the developing processes as shown in Figure 1.3.1. Relation between the themes and significant problems and constraints could refer the schematized outcomes on the NIMP for the Mainland.

Taking whole arranged relations of themes into consideration, components were formulated so as to relieve and improve the problematic situations. Generally, a project shall succeed under the conditions of "good organization (including good resources)", "good rules", "good tools", "good information" and "good motivation", etc. Concepts of these five aspects of conditions were introduced for identifying and formulating of components. As shown in Figure 1.3.1, totally 23 groups of components were identified so as to cover any requirement of improvement, which were categorized from 5 groups of I to V.

Furthermore, some groups of components are not able to fulfill the objectives by itself, and require the integrated approach with other plural components. Consequently, re-grouping of components were made, and finally divided into 31 components were formed by the conceptualized aspects, as shown Table 1.3.1.

This ZIMP would be hopefully implemented at the same duration of implementation of the NIMP. The Subject-wise Improvement Programme in the NIMP would cover some components of the ZIMP, and these could be applied to the ZIMP's components in order to save costs and to promote further close

relation between both the governments. Finally, 23 components of the Subject-wise Improvement Programme in the ZIMP should be covered by the related components in the NIMP, which concern preparation of technical guidelines and technical studies. In this respect, 8 components among the proposed all components should be implemented separately under the ZIMP. The components to be implemented in the ZIMP are outlined in Table 1.3.2.

PDM (Programme Design Matrix), viz. Logical Framework, of the components to be independently implemented within the ZIMP were prepared in Attachment 1.

CHAPTER 2 SCHEME-WISE DEVELOPMENT PROGRAMME

2.1 Priority Grouping of the Inventorized Schemes

2.1.1 Preparation of Criteria for Prioritization

(1) General

As for irrigation development, no criteria/guideline for scheme prioritization has been developed so as to select suitable schemes to meet objective of the programs. Thus, the criteria are to be facilitated so that the schemes can be evaluated by various aspects, such as technical factors, economical factors, environmental aspects, and social aspects.

(2) Criteria for prioritization of inventorized schemes

(a) Factors for Prioritization

Prioritization shall be made by using the factors, such as:

- Technical factors
- Economic factors
- Environmental factors
- Ease of implementation
- Social factors

(b) Technical factors

The schemes shall be evaluated in technical viewpoints, such as slope, possibility of salinity and alkalinity problem in soil, occurrence of flood, and drainage problem.

(c) Economic factors

The level of economic viability can be represented by EIRR. EIRR may be supplemented by size of potential area, water abstraction method. In addition, financial viability of farmers can be considered based on incremental benefits with irrigation.

(d) Environmental factors

The schemes shall be prioritized according to possibility of environmental status, such as sedimentation, water-borne diseases, and water quality.

(e) Factors for ease of implementation

The ease of implementation for each scheme shall be evaluated based on accessibility to the site, including distance from main road and road condition in rainy season.

(f) Social factors

The readiness for implementation shall be directly related to the social aspects such as formation of farmers' organization for irrigation, farmers' abilities for operation and maintenance of the schemes, existence of water right, because these factors are fundamental requirement for commencement of the rehabilitation / construction works.

Considering the above, the criteria for prioritization are prepared, as shown in the following page:

Criteria for Scheme Prioritization

Factors for Evaluation			Points
1	Technical Factors (20 points)	1. Slope (6 points)	
		(a) Flat (less than 0.5%)	6
		(b) Mild (0.5 - 2.0%)	5
		(c) Moderate (2.0 - 4.0%)	4
		(d) Steep (more than 4.0%)	3
		2. Salinity / Alkalinity of Soil (10 points)	
		(a) Observed	0
		(b) Not observed	10
		3. Damage by flood (2 points)	
		(a) Observed	0
		(b) Not observed	2
		4. Drainage Problem (2 points)	
		(a) Observed	0
		(b) Not observed	2
2	Economic Factors (40 points)	1 Size of potential area (10 points)	
		(a) Less than 500 ha	4
		(b) 500 - 1000 ha	6
		(c) 1000 - 2000 ha	8
		(d) More than 2000 ha	10
		2. Water abstraction method (10 points)	
		(a) Gravity	10
		(b) Pump	5
		3. EIRR (15 points)	
		(a) Less than 8.0%	3
		(b) 8.0 - 12.0 %	6
		(c) 12.0 - 16.0 %	9
		(d) 16.0 - 20.0 %	12
		(e) More than 20.0 %	15
		4. Financial Viability (5 points)	5
3	Possibility of Environmental Status Factors (10 points)	1. Sedimentation (5 points)	
		(a) Serious	0
		(b) Fair	1
		(c) Little	4
		(d) None	5
		2. Water-borne Diseases (2 points)	
		(a) Serious	0
		(b) Fair	1
		(c) None	2
		3. Water quality (3 points)	
		(a) Serious	0
		(b) Fair	1
		(c) Little	2
		(d) None	3

Factors for Evaluation				Points
4	Ease of implementation (5 points)	1	Accessibility to site	
			(a) Serious	5
			(b) Fair	3
			(c) Little	1
5	Social Factors (25 points)	1.	Organization set-up (4 points)	
			(a) Established	4
			(b) Not yet established	0
		2.	Establishment of O&M committee (2 points)	
			(a) Organization set-up	2
			(b) Not yet established	0
		3.	Linkage with village (2 point)	
			(a) Good	2
			(b) Poor	0
		4.	Operation body of schemes (3 points)	
			(a) Farmers' organization	3
			(b) Other bodies	1
		5.	Training for O&M (2 points)	
			(a) Satisfactory	2
			(b) Not satisfactory	1
		6.	Maintenance of scheme (2 point)	
			(a) By Farmers' organization	2
			(b) By Other bodies	0
		7.	Existence of water right (8 points)	
			(a) Existence	8
			(b) Non-existence	0
		8.	Average farm size (2 point)	
			(a) 0 – 1.0 ha per household	2
			(b) Others	0

2.1.2 Priority Grouping of Inventorized Schemes

Priority grouping of the inventorized schemes aims to facilitate the formulation of 18-years scheme-wise development program for the ZIMP. In order to utilize the nation's endowed resources effectively for irrigation development, the proposed schemes should be investigated, planned, designed and implemented in proper manner in accordance with the proposed criteria, and only those schemes that will pass the screening criteria are expected to proceed for implementation.

The implementation schedule of ZIMP should therefore be based on the priority groupings which will classify the inventorized schemes into 4 groups, namely, "A" group, "B" group, "C" group, and "D" group. The qualified schemes ("A" group) will be prioritized in accordance with the agreed guidelines for prioritization.

57 schemes are classified into four groups according to the criteria for prioritization as shown right:

Criteria for Prioritization

Points	Group
Over 70	"A" Group
61 - 70	"B" Group
51 – 60	"C" Group
Below 50	"D" Group

2.1.3 Results of Priority Grouping

The results of the priority grouping are given in Table 2.1.1 and summarized as follows:

Summary of Priority Grouping

	Group	Nos.	Potential Area (ha)
(1)	"A" Group	4	810
(2)	"B" Group	11	1,237
(3)	"C" Group	29	3,320
(4)	"D" Group	13	3,154
Total		**57**	**8,521**

The general features of the "A" Group schemes are as follows:

Distribution of "A" Group Schemes by Region

Region	Nos.	Potential Area (ha)
North 'A' - Unguja	2	650
North 'B' - Unguja	-	-
Urban West - Unguja	1	120
North Pemba	1	40
South Pemba	-	-
Total	**4**	**810**

2.2 Development Programme for the Year 2020

2.2.1 Development Target

The possible irrigation development areas by 2020 are estimated at 2,383 ha under the "High Case" of financial resource. These areas are ensured by developing 16 irrigation schemes which are selected from the "A", "B" Groups and parts of "C" group. The breakdown of 16 irrigation schemes is as follows:

Irrigation Development Areas by 2020

Type of Development	No(s).	Total Irrigable Area
Surface by dam reservoir	12	1,349 ha
Surface by diversion weir	3	432 ha
Groundwater by pump	1	602 ha
Total	**16**	**2,383 ha**

2.2.2 Stage-wise Development Programme

Based on the results of prioritization of irrigation schemes and possibly available development budget, the irrigation development areas for 3 terms are estimated as follows:

Accumulated Irrigation Development Area

Development Target at each Term	Short Term 2003 - 2007	Medium Term by 2012	Long Term by 2020
(a) Surface by dam reservoir	356 ha	756 ha	1,349 ha
(b) Surface by diversion weir	90 ha	132 ha	432 ha
(c) Groundwater by pump	178 ha	178 ha	602 ha
Total	**624 ha**	**1,066 ha**	**2,383ha**

Tables 2.2.1 to 2.2.4 present the details of stage-wise development of 57 prioritized irrigation schemes.

2.2.3 Cost Estimate

The project cost for irrigation schemes is estimated by referring to the guidelines on irrigation development level discussed in Clause 6.3. The estimated project costs for the scheme-wise development are indicated in Table 2.2.5 and tabulated below:

Annually Required Cost for Scheme-wise Development

Items	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	Total
Total	12	24	87	149	149	137	137	161	261	361	371	437	501	502	563	615	696	802	5,965
GOT[1]	10	19	69	119	119	110	110	129	209	289	297	350	401	401	451	492	557	642	4,772
Farmers[2]	2	5	17	30	30	27	27	32	52	72	74	87	100	100	113	123	139	160	1,190

Unit: thousand US$, 1: 80 % of project cost, 2: 20 % of project cost

Table

Table 1.3.1 Proposed Components of the Subject-wise Programme in ZIMP

Reference No.	Programme Title	Target organization or groups	Outlines of the Programme	Remarks
I-1	IS Institutional Improvement Programme	Irrigation Sector and LOAs	Institutional improvement plan of the IS's organization is authorized. And the institutional improvement plan of the IS is carried out.	To be originaly prepared
II-1	IS Working Mandate Formulation Programme	Irrigation Sector and LGAs	Proper waking mandate of IS is regulated and started to be applied.	To be originaly prepared
II-2	Regulatory Networking System Establishment between LGAs and IS	Irrigation Sector and LGAs	Regulatory Networking System between LGAs (districts) and IS is established, and the system starts to work.	To be originaly prepared
II-3	NGOs' Intervention in Irrigation Development Encourage Programme	Any	Encouragement plan for NGOs' intervention in irrigation development is established. The encouragement plan for NGOs' intervention in irrigation development is started.	To be utilized outcome B4 for the Mainland
II-4	*Cooperation Channeling within Irrigation-Sector* Establishment Programme	*Irrigation Sector* and LGAs	*Properly linked mandate and duties of each agency in irrigation sector are* established.	To be originaly prepared
II-5	Sub-sectors Coordination System Establishment	Any agencies related	Proper coordination directive among every sub-sectors related to irrigated agriculture are established.	To be originaly prepared
III-1	Survey and Investigation Guideline Establishment Programme	Any	Survey and Investigation(S&I) Guideline which is convenient for survey and investigation of new irrigation planning is completed. A copy of the S&I Guideline is placed in each district and section related irrigation development.	To be utilized outcome C1 for the Mainland
III-2(1)	Planning Guideline Establishment Programme	Any	*Planning Guideline which is convenient for planning of new irrigation scheme is* completed. A copy of the Planning Guideline is placed in each district and section related irrigation development.	To be utilized outcome C2.1 for the Mainland
III-2(2)	Designing Guideline Establishment Programme	Any	Designing Guideline which is convenient for designing of new irrigation scheme is completed. A copy of the Designing Guideline is placed in each district and section related irrigation development.	To be utilized outcome C2.2 for the Mainland
III-3(1)	O&M Guideline Establishment Programme	Any	O&M Guideline which is convenient for the works of operation and maintenance of any irrigation schemes is completed. A copy of the O&M Guideline is placed in each district and section related irrigation development.	To be utilized outcome C3.1 for the Mainland
III-3(2)	Monitoring & Evaluation Guideline Establishment Programme	Any	M&E Guideline which is convenient for monitoring and evaluation of any irrigation schemes is completed. A copy of the M&E Guideline is placed in each district and section related irrigation development.	To be utilized outcome C3.2 for the Mainland
III-4	Farmers' Participation in Irrigation Development Programme	Farmers and Farmers' Group	A Guideline for farmers participation is prepared. Some numbers of pilot model irrigation schemes for farmers participation are established, and replicable effects of the pilot models for farmers participation are expanded to other areas.	To be utilized outcome C4 for the Mainland
III-5	Village Irrigation Development Guideline Establishment Programme	L GAs and Farmers	Village Irrigation Development (VID) Guideline which is convenient for planning, designing, construction and O&M of *new village irrigation scheme is completed.* A copy of the VID Guideline is placed in each district and organization related.	To be utilized outcome C5 for the Mainland
III-6	Farmers' O&M Manual Establishment Programme	Farmers and Farmers' Group	Farmers' O&M Manual which is convenient for the farmers' works and activities to be taken during operation and maintenance of any irrigation schemes is completed. A copy of the F'O&M Manual is placed in each district, section related irrigation	To be utilized outcome C6 for the Mainland
III-7	Establishment of DADP Formulation Guideline for Irrigated Agriculture Development (DADP-IA)	LGAs	DADP-IA Guideline which is convenient for planning of new irrigation scheme dealt with Districts is completed. A copy of the DADP-IA Guideline is placed in each district and organization related irrigation development (including NGOs).	To be utilized outcome C7 for the Mainland
IV-1	*Technical Manuals Handling Guideline Establishment* Programme	Any	Technical Manuals Handling TMH Guideline which is convenient for handling and managing all technical references is completed. A copy of the TMH Guideline is placed in each section related irrigation development in central government and	*To be utilized outcome D2 for* the Mainland
IV-2	Information and Database Improvement Programme	Irrigation Sector and LGAs	Databases related to irrigation development and management are completed and started for its services.	To be utilized outcome D3 for the Mainland
IV-3	Irrigation Development Contactors and Consultants' Listing Programme	Any	Contractors and consultants' inventory for the contract works of irrigation development is completed. Up-dating system for the contractors and consultants' inventory is established.	To be utilized outcome D4 for the Mainland
IV-4	LGA Networking System Establishment Programme	LGAs	Irrigation offices of districts are enabled to access intra-new of IS and ZIOs individually and at any time, so as to communicate any matters of irrigation development.	To be originaly prepared
IV-5	Existing-scheme Monitoring System Establishment Programme	Irrigation Sector and LGAs	An existing irrigation monitoring system is established. The monitoring system starts its operation as required.	To be originaly prepared
V-1(1)	Irrigation Technology Research Center Establishment Programme	Irrigation Sector and LGAs	An Irrigation Technology Research Center is established in suitable manners. The Irrigation Technology Research Center starts its operation as required.	To be utilized outcome E1.1 for the Mainland
V-1(2)	Perenial Irrigation Method Improvement Programme	Irrigation Sector and LGAs	Improving measures for perennial irrigation practice in Tanzania are established on the basis of real hindrances and inconveniences.	To be utilized outcome E1.2 for the Mainland
V-1(3)	Flood Irrigation Development Programme	Irrigation Sector and LGAs	Sustainable flood irrigation (water harvesting) know-how for marginal areas in Tanzania is established on the bases of the previous failures. And proper methods of flood irrigation (water harvesting) take the place of improper ones which were	To be utilized outcome E1.3 for the Mainland
V-1(4)	Small Dam Technology for Irrigation Development Establishment Programme	Irrigation Sector and LGAs	Adequate small dam technology for irrigation development to meet circumstances in Tanzania is established *on the bases of the previous lessons. Proper method of* water utilization by small dam is introduced to engineers in irrigation.	To be utilized outcome E1.4 for the Mainland
V-1(5)	Environmental Assessment Study for Irrigation Practice in Tanzania	Irrigation Sector and LGAs	Environmental issues affected presently in and by irrigation practice in Tanzania are elucidated. Measures of avoiding environmental deterioration by irrigation practice are worked out.	To be utilized outcome E1.5 for the Mainland
V-1(6)	Study of River-Basin Approach in Irrigation Development	Irrigation Sector and LGAs	Proper river-basin approach for irrigation sector is established as a form of guideline. And the proper river-basin approach for irrigation sector is expanded for irrigators.	To be utilized outcome E1.6 for the Mainland
V-2	*Hydraulic Experimental Center Establishment* Programme	*Irrigation Sector* and LGAs	*A Hydraulic Experimental Center is established in suitable manners. The Hydraulic* Experimental Center starts its operation as required.	To be utilized outcome E2 for the Mainland
V-3	Farmers' Participation Training Programme	Farmers and Farmers' Group	Farmers' participation training programme for irrigated agriculture is established. The farmers' participation training programme is executed.	To be utilized outcome E5 for the Mainland
V-4(1)	Irrigated Agriculture Training Programme for Rice Production Increase	Farmers and Farmers' Group	Productivities of rice increases in the model sites through the KATC's training.	To be utilized outcome E6.1 for the Mainland
V-4(2)	Irrigated Agriculture Training Programme for Cash Crops Production Increase	Farmers and Farmers' Group	Productivities of irrigated cash crop increase in the model sites through training of the programme.	To be utilized outcome E6.2 for the Mainland
V-5	Integrated Irrigation Development Model establishment Programme	Any	Pilot models of integrated irrigation development which is irrigated agricultural development with fulfilling rural development comprehensively, are implemented. The pilot models sustain outcomes of the development.	To be originaly prepared

Table 1.3.2 Outline of Components of the Subject-wise Programme in ZIMP (1/2)

Reference No.	Programme Title	Target organization or groups	Location	Objectives	Major Outputs
I-1	IS Institutional Improvement Programme	Irrigation Sector and LGAs	Zanzibar	Institutional improvement plan of the IS's organization is authorized. And the institutional improvement plan of the IS is carried out. Outline of Proposed Development Programmes in ZIMP	1 Institutional improvement plan of the IS's organization is finalized. 2 Organizational structure of IS is legitimately changed. 3 Personnel changes and if necessary recruitment of staff are done in the IS in line with the institutional improvement plan. 4 New organization of IS is enabled to work.
II-1	IS Working Mandate Formulation Programme	Irrigation Sector and LGAs	Zanzibar	Proper waking mandate of IS is regulated and started to be applied.	1 Mission statement of IS is established. 2 Task duties of IS is established in line with the Mission statement of IS. 3 Procedures on scheme implementation are systemized and formalized.
II-2	Regulatory Networking System Establishment between LGAs and IS	Irrigation Sector and LGAs	Nationwide	Regulatory Networking System between LGAs (districts) and IS is established, and the system starts to work.	1 Communication channel for transferring information between districts and IS is set up. 2 Necessary equipment to make communicate between both parties possible is installed. 3 Arrangement for open utilization of useful tools and information in IS to districts is made.
II-3	NGOs' Intervention in Irrigation Development Encourage Programme	*To be applied the outcome of component B4 for the Mainland*			
II-4	Cooperation Channeling within Irrigation-Sector Establishment Programme	Irrigation Sector and LGAs	Nationwide	Properly linked mandate and duties of each agency in irrigation sector are established.	1 Cooperative mission statement of every parties in irrigation sector is established in consideration with linkage each other. 2 Cooperative Duties and Mandate of irrigation sector is established in line with the Mission statements.
II-5	Sub-sectors Coordination System Establishment	Any agencies related	Nationwide	Proper coordination directive among every sub-sectors related to irrigated agriculture are established.	1 Coordination system (or directive and rules system) among sub-sectors related to irrigated agriculture development are established. 2 The coordination system among sub-sectors works on retaining of good progress of irrigated agriculture.
III-1	Survey and Investigation Guideline Establishment Programme	*To be applied the outcome of component C1 for the Mainland*			
III-2(1)	Planning Guideline Establishment Programme	*To be applied the outcome of component C2.1 for the Mainland*			
III-2(2)	Designing Guideline Establishment Programme	*To be applied the outcome of component C2.2 for the Mainland*			
III-3(1)	O&M Guideline Establishment Programme	*To be applied the outcome of component C3.1 for the Mainland*			
III-3(2)	Monitoring & Evaluation Guideline Establishment Programme	*To be applied the outcome of component C3.2 for the Mainland*			
III-4	Farmers' Participation in Irrigation Development Programme	*To be applied the outcome of component C4 for the Mainland*			
III-5	Village Irrigation Development Guideline Establishment Programme	*To be applied the outcome of component C5 for the Mainland*			
III-6	Farmers' O&M Manual Establishment Programme	*To be applied the outcome of component C6 for the Mainland*			
III-7	Establishment of DADP Formulation Guideline for Irrigated Agriculture Development (DADP-IA)	*To be applied the outcome of component C7 for the Mainland*			
IV-1	Technical Manuals Handling Guideline Establishment Programme	*To be applied the outcome of component D2 for the Mainland*			
IV-2	Information and Database Improvement Programme	*To be applied the outcome of component D3 for the Mainland*			
IV-3	Irrigation Development Contactors and Consultants' Listing Programme	*To be applied the outcome of component D4 for the Mainland*			

Table 1.3.2 Outline of Components of the Subject-wise Programme in ZIMP (2/2)

Reference No.	Programme Title	Target organization or groups	Location	Objectivies	Major Outputs
IV-4	LGA Networking System Establishment Programme	Irrigation Sector and LGAs	Nationwide	Irrigation offices of districts are enabled to access intra-new of IS and ZIOs individually and at any time, so as to communicate any matters of irrigation	1 Information facilities so as to access to internet is installed in the irrigation offices of districts. 2 Staff of the irrigation offices of districts can operate the installed system to access to internet. 3 The network system linked to internet installed in the irrigation offices of districts utilize effectively for the purpose of irrigation development.
IV-5	Existing-scheme Monitoring System Establishment Programme	Irrigation Sector and LGAs	Nationwide	An existing irrigation monitoring system is established. The monitoring system starts its operation as required.	1 Hardware of the monitoring system is stationed. 2 *Software of the monitoring system (database of schemes, and necessary information etc.)* is prepared. 3 Operation and utilized arrangement is systemized. 4 Up-dating system for the monitoring system is systemized.
V-1(1)	Irrigation Technology Research Center Establishment Programme	*To be applied the outcome of component E1.1 for the Mainland*			
V-1(2)	Perenial Irrigation Method Improvement Programme	*To be applied the outcome of component E1.2 for the Mainland*			
V-1(3)	Flood Irrigation Development Programme	*To be applied the outcome of component E1.3 for the Mainland*			
V-1(4)	Small Dam Technology for Irrigation Development Establishment Programme	*To be applied the outcome of component E1.4 for the Mainland*			
V-1(5)	Environmental Assessment Study for Irrigation Practice in Tanzania	*To be applied the outcome of component E1.5 for the Mainland*			
V-1(6)	Study of River-Basin Approach in Irrigation Development	*To be applied the outcome of component E1.6 for the Mainland*			
V-2	Hydraulic Experimental Center Establishment Programme	*To be applied the outcome of component E2 for the Mainland*			
V-3	Farmers' Participation Training Programme	*To be applied the outcome of component E5 for the Mainland*			
V-4(1)	Irrigated Agriculture Training Programme for Rice Production Increase	*To be applied the outcome of component E6.1 for the Mainland*			
V-4(2)	Irrigated Agriculture Training Programme for Cash Crops Production Increase	*To be applied the outcome of component E6.2 for the Mainland*			
V-5	Integrated Irrigation Development Model establishment Programme	Any	Nationwide	Pilot models of integrated irrigation development which is irrigated agricultural development with fulfilling rural development comprehensively, are implemented. The pilot models sustain outcomes of the development.	1 Development concept of integrated irrigation development is clarified. 2 Method and modality for integrated irrigation development are established. 3 Works for pilot model development are implemented at selected sites (villages). 4 A monitoring routine is established, and starts operation.

Table 2.1.1 Results of Priority Grouping

SERIAL NO	Island	REGION	DISTRICT	NAME	Type1	Type2	Type3	Type4	Type5	Irrigated Area (ha)	Potential Area (ha)	EIRR	Score						Grouping
													Technical	Economical	Environment	Ease of implementation	Social	Total Score	
2603	2 Pemba	NORTH - PEMBA	MICHEWENI	Kinyaknzi	1 Improvement	1 Existing	1 Reservoir	1 Gravity	1 Small	8	40	22.7%	17	32	10	3	14	76	A
1102	1 Unguja	NORTH - UNGUJA	NORTH 'A' - UNGUJA	Kibokwa	2 Restore	2 Abandoned	1 Reservoir	1 Gravity	3 Large		250	19.0%	19	33	8	1	13	74	A
1502	1 Unguja	URBAN WEST	WEST	Mtwango Irrigation Scheme	1 Improvement	1 Existing	2 Diversion	1 Gravity	2 Medium	78	120	23.5%	17	34	8	3	11	73	A
1202	1 Unguja	NORTH - UNGUJA	NORTH 'B' - UNGUJA	Kipange	2 Restore	2 Abandoned	1 Reservoir	1 Gravity	3 Large		400	19.4%	17	33	8	3	11	72	A
2706	2 Pemba	NORTH - PEMBA	WETE	Tungamaa	1 Improvement	1 Existing	1 Reservoir	1 Gravity	1 Small	6	33	20.8%	17	32	8	3	10	70	B
2611	2 Pemba	NORTH - PEMBA	MICHEWENI	Saninga	1 Improvement	1 Existing	1 Reservoir	1 Gravity	1 Small	16.4	38	15.7%	16	26	10	3	14	69	B
1305	1 Unguja	SOUTH - UNGUJA	CENTRAL	Mchangani	3 Construction	3 Rainfed	2 Diversion	1 Gravity	3 Large		300	22.8%	9	36	5	3	11	64	B
1501	1 Unguja	URBAN WEST	WEST	Bumbwi Sudi	1 Improvement	1 Existing	3 GW	2 Pump	3 Large	136	560	18.9%	16	28	6	5	9	64	B
2605	2 Pemba	NORTH - PEMBA	MICHEWENI	Makwararani	1 Improvement	1 Existing	1 Reservoir	2 Gravity	2 Medium		114	19.2%	17	31	8	3	5	64	B
2601	2 Pemba	NORTH - PEMBA	MICHEWENI	Bule	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		12	16.9%	17	29	8	3	7	64	B
2602	2 Pemba	NORTH - PEMBA	MICHEWENI	Chwaka	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		17	16.9%	17	29	8	3	7	64	B
2805	2 Pemba	SOUTH - PEMBA	CHAKE CHAKE	Mlemele	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	2 Medium		73	16.3%	17	31	8	3	5	64	B
2803	2 Pemba	SOUTH - PEMBA	CHAKE CHAKE	Kwapweza	2 Restore	2 Abandoned	1 Reservoir	1 Gravity	2 Medium		62	14.1%	19	28	8	3	5	63	B
1306	1 Unguja	SOUTH - UNGUJA	CENTRAL	Mwera	1 Improvement	1 Existing	2 Diversion	1 Gravity	1 Small	12	12	15.7%	17	26	5	3	11	62	B
2904	2 Pemba	SOUTH - PEMBA	MKOANI	Kiguni	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		16	12.5%	19	26	8	3	5	61	B
1101	1 Unguja	NORTH - UNGUJA	NORTH 'A' - UNGUJA	Chaani	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	3 Large		250	16.8%	9	33	8	3	7	60	C
2702	2 Pemba	NORTH - PEMBA	WETE	Kwalempona	2 Restore	2 Abandoned	1 Reservoir	1 Gravity	2 Medium	13.6	53	8.2%	19	25	10	1	5	60	C
2908	2 Pemba	SOUTH - PEMBA	MKOANI	Machigini/Gae la Mtungi	2 Restore	2 Abandoned	1 Reservoir	1 Gravity	3 Large		547	9.3%	17	27	8	1	7	60	C
1301	1 Unguja	SOUTH - UNGUJA	CENTRAL	Bambi	2 Restore	2 Abandoned	3 GW	2 Pump	2 Medium		168	16.6%	18	26	5	1	9	59	C
1302	1 Unguja	SOUTH - UNGUJA	CENTRAL	Cheju Irrigation Scheme	1 Improvement	1 Existing	3 GW	2 Pump	3 Large	42	1198	16.8%	10	30	5	3	11	59	C
2608	2 Pemba	NORTH - PEMBA	MICHEWENI	Mshashani	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		25	13.5%	17	26	8	3	5	59	C
2801	2 Pemba	SOUTH - PEMBA	CHAKE CHAKE	Dobi	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		25	12.3%	17	26	8	3	5	59	C
2704	2 Pemba	NORTH - PEMBA	WETE	Mipopooni	2 Restore	2 Abandoned	1 Reservoir	1 Gravity	2 Medium	13.6	65	9.6%	17	25	8	1	7	58	C
2905	2 Pemba	SOUTH - PEMBA	MKOANI	Kimburi	2 Restore	2 Abandoned	1 Reservoir	1 Gravity	1 Small		21	14.8%	17	26	7	3	5	58	C
2907	2 Pemba	SOUTH - PEMBA	MKOANI	Kwamkoba	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	2 Medium		93	12.0%	17	25	8	3	5	58	C
1503	1 Unguja	URBAN WEST	WEST	Tomondo, Kijitoupele and Kwarara	3 Construction	3 Rainfed	2 Diversion	1 Gravity	2 Medium		53	20.9%	10	34	5	3	5	57	C
2604	2 Pemba	NORTH - PEMBA	MICHEWENI	Kinyasini	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		23	11.5%	16	23	8	3	7	57	C
2802	2 Pemba	SOUTH - PEMBA	CHAKE CHAKE	Kwamavi	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		22	16.9%	17	29	5	1	5	57	C
2909	2 Pemba	SOUTH - PEMBA	MKOANI	Makunge	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	2 Medium		54	12.1%	17	28	6	1	5	57	C
2911	2 Pemba	SOUTH - PEMBA	MKOANI	Masingini	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		15	12.9%	19	26	6	1	5	57	C
2914	2 Pemba	SOUTH - PEMBA	MKOANI	Mizingani	2 Restore	2 Abandoned	1 Reservoir	1 Gravity	1 Small		25	12.1%	17	26	6	3	5	57	C
2610	2 Pemba	NORTH - PEMBA	MICHEWENI	Ngwia	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	2 Medium		76	11.9%	17	25	8	3	3	56	C
2606	2 Pemba	NORTH - PEMBA	MICHEWENI	Matangazwani	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		19	11.3%	17	23	8	3	5	56	C
2804	2 Pemba	SOUTH - PEMBA	CHAKE CHAKE	Mabieni	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		35	12.7%	19	26	5	1	5	56	C
2607	2 Pemba	NORTH - PEMBA	MICHEWENI	Mgong'ombe	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		41	7.0%	17	20	8	3	7	55	C
2705	2 Pemba	NORTH - PEMBA	WETE	Mleteni	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		31	10.4%	19	23	5	3	5	55	C
2707	2 Pemba	NORTH - PEMBA	WETE	Weni	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		35	7.0%	17	20	8	5	5	55	C
1203	1 Unguja	NORTH - UNGUJA	NORTH 'B' - UNGUJA	Mahonda/Chechele	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	3 Large		300	12.3%	11	30	5	1	7	54	C
2901	2 Pemba	SOUTH - PEMBA	MKOANI	Donge Manyiga	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		19	11.2%	19	23	6	1	5	54	C
2903	2 Pemba	SOUTH - PEMBA	MKOANI	Giriama	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		33	11.6%	19	23	6	1	5	54	C
1304	1 Unguja	SOUTH - UNGUJA	CENTRAL	Koani/Ubango	3 Construction	3 Rainfed	2 Diversion	1 Gravity	1 Small		20	26.3%	10	32	5	3	3	53	C
2703	2 Pemba	NORTH - PEMBA	WETE	Mangwena	1 Improvement	1 Existing	1 Reservoir	1 Gravity	1 Small	10	29	11.2%	9	23	5	3	12	52	C
2910	2 Pemba	SOUTH - PEMBA	MKOANI	Maotwe	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		13	16.6%	7	29	8	3	5	52	C
2609	2 Pemba	NORTH - PEMBA	MICHEWENI	Mwanasoza	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		32	10.6%	17	23	5	3	3	51	C
1201	1 Unguja	NORTH - UNGUJA	NORTH 'B' - UNGUJA	Kilombero	2 Restore	2 Abandoned	3 GW	2 Pump	3 Large		850	10.3%	9	22	5	3	11	50	D
2913	2 Pemba	SOUTH - PEMBA	MKOANI	Mchangapwaga	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		10	14.6%	9	26	8	1	5	49	D
2906	2 Pemba	SOUTH - PEMBA	MKOANI	Kwamachigi	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	2 Medium		51	8.8%	9	25	8	1	5	48	D
1402	1 Unguja	SOUTH - UNGUJA	SOUTH	Muyuni	3 Construction	3 Rainfed	3 GW	2 Pump	3 Large		586	8.8%	10	22	5	3	7	47	D
2807	2 Pemba	SOUTH - PEMBA	CHAKE CHAKE	Tibirinzi	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small	6	25	6.9%	7	20	7	3	10	47	D
2806	2 Pemba	SOUTH - PEMBA	CHAKE CHAKE	Ngue	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		5	6.3%	10	20	6	5	5	46	D
2912	2 Pemba	SOUTH - PEMBA	MKOANI	Muambwini	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		29	9.8%	9	23	8	3	3	46	D
1401	1 Unguja	SOUTH - UNGUJA	SOUTH	Mtende	3 Construction	3 Rainfed	3 GW	2 Pump	3 Large		330	8.8%	10	22	5	3	5	45	D
1204	1 Unguja	NORTH - UNGUJA	NORTH 'B' - UNGUJA	Upenja	3 Construction	3 Rainfed	3 GW	2 Pump	3 Large		418	11.2%	8	22	3	3	9	45	D
2701	2 Pemba	NORTH - PEMBA	WETE	Gando	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		24	10.8%	7	23	5	3	6	44	D
1307	1 Unguja	SOUTH - UNGUJA	CENTRAL	Ubago	3 Construction	3 Rainfed	3 GW	2 Pump	1 Small		14	13.3%	8	21	3	3	9	44	D
2902	2 Pemba	SOUTH - PEMBA	MKOANI	Egeani	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		12	11.1%	6	23	8	1	5	43	D
1303	1 Unguja	SOUTH - UNGUJA	CENTRAL	Kisima Mchanga	3 Construction	3 Rainfed	3 GW	2 Pump	3 Large		800	10.7%	11	22	5	1	3	42	D

Table 2.2.1 Accumulated Irrigation Development Area by Region (All Categories)

Unit : ha

Island	Region	Year																	
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Unguja	North - Unguja	0	0	250	250	250	250	250	250	650	650	650	650	650	650	650	650	900	900
	South - Unguja	54	54	54	54	54	54	54	54	54	54	54	354	354	354	354	354	354	354
	Urban West	214	214	214	214	214	214	256	256	256	256	256	256	680	680	680	680	680	680
	Sub-Total	268	268	518	518	518	518	560	560	960	960	960	1,260	1,684	1,684	1,684	1,684	1,934	1,934
Pemba	North - Pemba	100	100	100	100	100	100	100	100	100	100	127	149	149	263	292	292	292	292
	South - Pemba	6	6	6	6	6	6	6	6	6	6	6	6	6	6	79	79	157	157
	Sub-Total	106	106	106	106	106	106	106	106	106	106	133	155	155	269	371	371	449	449
Total		374	374	624	624	624	624	666	666	1,066	1,066	1,093	1,415	1,839	1,953	2,055	2,055	2,383	2,383

Table 2.2.2 Accumulated Irrigation Development Area by Region (Surface Irrigation by Dam Reservoir)

Unit : ha

Island	Region	Year																	
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Unguja	North - Unguja	0	0	250	250	250	250	250	250	650	650	650	650	650	650	650	650	900	900
	South - Unguja	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Urban West	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sub-Total	0	0	250	250	250	250	250	250	650	650	650	650	650	650	650	650	900	900
Pemba	North - Pemba	100	100	100	100	100	100	100	100	100	100	127	149	149	263	292	292	292	292
	South - Pemba	6	6	6	6	6	6	6	6	6	6	6	6	6	6	79	79	157	157
	Sub-Total	106	106	106	106	106	106	106	106	106	106	133	155	155	269	371	371	449	449
Total		106	106	356	356	356	356	356	356	756	756	783	805	805	919	1,021	1,021	1,349	1,349

Table 2.2.3 Accumulated Irrigation Development Area by Region (Surface Irrigation by Diversion Weir)

Unit : ha

Island	Region	Year																	
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Unguja	North - Unguja	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	South - Unguja	12	12	12	12	12	12	12	12	12	12	12	312	312	312	312	312	312	312
	Urban West	78	78	78	78	78	78	120	120	120	120	120	120	120	120	120	120	120	120
	Sub-Total	90	90	90	90	90	90	132	132	132	132	132	432	432	432	432	432	432	432
Pemba	North - Pemba	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	South - Pemba	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sub-Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		90	90	90	90	90	90	132	132	132	132	132	432	432	432	432	432	432	432

Table 2.2.4 Accumulated Irrigation Development Area by Region (Groundwater Irrigation by Pump)

Unit : ha

Island	Region	Year																	
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Unguja	North - Unguja	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	South - Unguja	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
	Urban West	136	136	136	136	136	136	136	136	136	136	136	136	560	560	560	560	560	560
	Sub-Total	178	178	178	178	178	178	178	178	178	178	178	178	602	602	602	602	602	602
Pemba	North - Pemba	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	South - Pemba	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sub-Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		178	178	178	178	178	178	178	178	178	178	178	178	602	602	602	602	602	602

Table 2.2.5 Annually Required Cost for Scheme-wise Development by GOZ

Unit : thousand US$

Island	Region	Year									
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Unguja	North - Unguja	9.6	19.2	19.2	19.2	19.2	9.6	0.0	0.0	0.0	0.0
	South - Unguja	0.0	0.0	50.0	100.0	100.0	100.0	100.0	100.0	180.0	260.0
	Urban West	0.0	0.0	0.0	0.0	0.0	0.0	9.6	28.8	28.8	28.8
	Sub-Total	9.6	19.2	69.2	119.2	119.2	109.6	109.6	128.8	208.8	288.8
Pemba	North - Pemba	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	South - Pemba	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Sub-Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total		9.6	19.2	69.2	119.2	119.2	109.6	109.6	128.8	208.8	288.8

Island	Region	Year							
		2013	2014	2015	2016	2017	2018	2019	2020
Unguja	North - Unguja	7.9	25.0	34.1	47.8	89.0	95.0	78.0	68.9
	South - Unguja	260.0	260.0	210.0	160.0	160.0	160.0	220.0	280.0
	Urban West	28.8	28.8	84.8	121.6	112.0	112.0	112.0	112.0
	Sub-Total	296.7	313.8	328.9	329.4	361.0	367.0	410.0	460.9
Pemba	North - Pemba	0.0	36.0	72.0	72.0	72.0	72.0	73.9	75.8
	South - Pemba	0.0	0.0	0.0	0.0	17.5	52.6	72.6	105.1
	Sub-Total	0.0	36.0	72.0	72.0	89.5	124.6	146.6	181.0
Total		296.7	349.8	400.9	401.4	450.6	491.6	556.6	641.8

Figure

The Study on the Zanzibar Irrigation Master Plan in the United Republic of Tanzania

Japan International Cooperation Agency

Figure 1.3.1
Procedures of Formulation of Subject-wise Programme in Zanzibar

Attachment

Attachment 1

PDM OF THE PROPOSED COMPONENTS OF SUBJECT-WISE PROGRAMME

PDM of the Programme I-1	(IS Institutional Improvement)
PDM of the Programme II-1	(IS Working Mandate Formulation)
PDM of the Programme II-2	(Regulatory Networking System Establishment between LGAs and IS)
PDM of the Programme II-4	(Cooperative Channeling within Irrigation Sector Establishment)
PDM of the Programme II-5	(Sub-Sectors' Coordination System Establishment)
PDM of the Programme IV-4	(LGAs Networking System Establishment)
PDM of the Programme IV-5	(Existing Scheme Monitoring System Development)
PDM of the Programme V-5	(Integrated Irrigation Development Model Establishment)

Attachment 1

PDM of the Programme I-1

(IS Institutional Improvement) under ZIMP - *Tentative*

Project Name: Zanzibar Irrigation Master Plan Duration: 2003 - 2020 (18 years)

Project Area: Zanzibar Target Agency: MANREC Date: August 2002

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Super Goal To stimulate and facilitate agricultural sector growth, and to reduce rural poverty			
Overall Goal To attain the objectives of ZIMP by means of well performance of restructured organization of Irrigation Sector (IS)	Performance of IS is improved. ZIMP is fulfilled almost on schedule.	Progress Reports of ZINP since 20XX	Other related programmes of ZIMP are animatedly implemented as scheduled.
Project Purpose Institutional improvement plan of the IS's organization is authorized. And the institutional improvement plan of the IS is carried out.	 By 20XX, the institutional improvement plan is approved by the Government. By 20XX, institutional improvement of IS is completed in line with the Plan.	 Note of approval by the Government Completion report of the institutional improvement	 Necessary official back-up is properly provided to restructured organization of IS so as to function properly. New organization of IS is equipped physically in line with the other programmes at the same time.
Outputs 1. Institutional improvement plan of the IS's organization is finalized. 2. Organizational structure of IS is legitimately changed. 3. Personnel changes and if necessary recruitment of staff are done in the IS in line with the institutional improvement plan. 4. New organization of IS is enabled to work.	 By 20XX,. institutional improvement of IS is started in line with the Plan.	 *Progress report of institutional improvement of IS*	 *Staff of IS is filled up or* replaced to meet the requirement in the Mission *statement of new* organization of IS.
Activities 1-1Review previous institutional improvement plans on the IS. 1-2 Prepare a realistic and most effective plan of institutional improvement of IS. 1-3 Finalize the plan of institutional improvement of IS.	**Inputs** **Donor** Task Force 1) Institution 1 month 2) System operation 1 month 3) Legal specialist 1 month Subject specialist for the subject of task duties (as required)	**GOZ** Personnel 1) Counterparts in each subject Equipment 1) Office L.S. 2) Others L.S.	All necessary arrangement for institutional improvement of IS will be fulfilled on schedule by concerned section in MANREC.

Attachment 1

2-1Make proceeding plan of legitimate change corresponding to the institutional improvement.. 2-2 Execute the proceeding plan of legitimate change. 3-1Make personnel assignment plan corresponding to the institutional improvement.. 3-2 Execute the personnel assignment plan. 4-1 Vest authority to restructured IS to function officially.	Equipment 1) Computer system L.S. 2) Office equipment L.S. 3) Others L.S. Budget Some part of expenditures of local activities related to the Project.	Budget 1) Salaries and necessary expenses for counterparts 2) Necessary expenditures in internal investigations.	**Preconditions** It is clearly confirmed the needs of institutional improvement of IS is recognized in MANREC. MANREC can provide necessary resources to IS so as to fulfill institutional improvement.

Attachment 1

PDM of the Programme II-1

(IS Working Mandate Formulation) under ZIMP - ***Tentative***

Project Name: Zanzibar Irrigation Master Plan | Duration: 2003 - 2020 (18 years)

Project Area: Zanzibar | Target Agency: MANREC | Date: August 2002

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Super Goal To stimulate and facilitate agricultural sector growth, and to reduce rural poverty			
Overall Goal To attain the objectives of ZIMP by means of well performance of Irrigation Sector (IS) in accordance with the IS mandate	Performance of IS is improved. ZIMP is fulfilled almost on schedule.	Progress Reports of ZIMP since 20XX	Other related programmes of ZIMP are animatedly implemented as scheduled.
Project Purpose Proper waking mandate of IS is regulated and started to be applied.	By 20XX, the IS working mandate is approved by the Government. By 20XX, the IS start to work fully under the working regulation.	Note of approval by the Government Result of work investigation for IS	Organization of IS is re-structured as proposed in other institutional improvement programme. Necessary official back-up is properly provided to IS so as to maintain the application of the mandate.
Outputs 1. Mission statement of IS is established. 2. Task duties of IS is established in line with the Mission statement of IS.. 3. Procedures on scheme implementation are systemized and formalized.	The mission statement of IS is approved and proclaimed by the Government. By 20XX, the task duties of IS is in effective.	Record of official proclamation Report on-the-spot investigation.	Staff of IS is filled up or replaced to meet the requirement in the Mission statement. The systemized formalities of scheme implementation will become a rule for common use to the related actors.
Activities 1-1Review previous mission for the IS. 1-2 Prepare a plan of new mission statement of IS. 1-3 Finalize the plan of mission	**Inputs** **Donor** Preparation Team 1) Task management 1 month 2) System operation 0.5 month 3) Institution 0.5 month	**GOZ** Personnel 1) Counterparts in each subject	All necessary arrangement for installation of databases will be fulfilled on schedule by concerned section in MANREC.

Attachment 1

statement of IS. 2-1Study demands to be included into the new duties standard of IS. 2-2Review previous duties of IS. 2-3Finalize a plan of task duties standard of IS. 3-1Conceptualize official procedures of schemes selection and implementation. 3-2Formalize each process of the scheme implementation in consideration with the finalized feature of IS and other related organizations and regulations. 3-3Prepare a written rules on the formalities on scheme implementation.	Subject specialist for the subject of task duties (as required) Equipment 1) Computer system L.S. 2) Office equipment L.S. 3) Others L.S. Budget Some part of expenditures of local activities related to the Project.	Equipment 1) Office L.S. 2) Others L.S. Budget 1) Salaries and necessary expenses for counterparts 2) Necessary expenditures in internal investigations.	**Preconditions** It is clearly confirmed the needs of establishment of certain task duties standard of IS is recognized in MANREC. MANREC can provide necessary resources to IS so that IS works as required in new mission statement.

Attachment 1

PDM of the Programme II-2

(Regulatory Networking System Establishment between LGAs and IS) under ZIMP - *Tentative*

Project Name: Zanzibar Irrigation Master Plan Duration: 2003 - 2020 (18 years)

Project Area: Zanzibar Target Agency: MANREC Date: August 2002

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Super Goal To stimulate and facilitate agricultural sector growth, and to reduce rural poverty			
Overall Goal To attain the objectives of ZIMP by means of well coordination between LGAs and Irrigation Sector (IS) through the Regulatory Networking System between LGAs and IS (NLS system)	By 20XX, the NLS system built up by this programme is utilized by 50 % of districts.	Report on-the-spot investigation for utilization of the NLS system.	Other related programmes of ZIMP are animatedly implemented as scheduled.
Project Purpose Regulatory Networking System between LGAs (districts) and IS is established, and the system starts to work.	By 20XX, more than 80 % of districts are under the networking system.	Report interview survey to districts	Good circumstance for utilization of the networking system between districts and IS is maintained. When revised the system and database itself, the former ones should be replaced smoothly.
Outputs 1.Communication channel for transferring information between districts and IS is set up.	Proposed communication channel between districts and IS are tested to work effectively.	Report of the testing	Districts have capability and financial resource to use the communication channels effectively for irrigation development.
2. Necessary equipment to make communicate between both parties possible is installed.	By 20XX, deployment of the necessary equipment is completed.	Report of inspection	Districts will maintain the communication channel well.
3. Arrangement for open utilization of useful tools and information in IS to districts is made.	By 20XX, the arrangement for open utilization of useful tools/information is completed.	Report of inspection	

Attachment 1

Activities	Inputs		
1-1Specify responsible position in districts for the subjects of irrigation development. 1-2 Proposed an organizational arrangement in districts to link channel from IS to the districts for the subjects of irrigation. 1-3 Make execution of the plan of organizational arrangement in district, unless present organization of district can keep up with under present condition. 2-1Identify need of installation of communication mean. 2-2 Install required equipment, if necessary. 3-1Investigate sort of tools and information required to deliver to districts so that district can maintain technical communication with IS on the basis of the same. 3-2 Distribute required tools and information to districts.	**Donor** Preparation Team 1) Institutional Specialist 1 month 2) System management 0.5 month 3) Networking Specialist 0.5 month 4) LGA organization 1 month Computer operator (as required) Subject specialist for the subject of networking (as required) Equipment 1) Computer system L.S. 2) Office equipment L.S. 3) Others L.S. Budget Some part of expenditures of local activities related to the Project.	**GOZ** Personnel 1) Counterparts in each subject Equipment 1) Office L.S. 2) Others L.S. Budget 1) Salaries and necessary expenses for counterparts 2) Some portion of the budget for installation of equipment	All necessary arrangement for establishment o the communication channel will be fulfilled on schedule by concerned section in MANREC. **Preconditions** It is clearly confirmed the needs of establishment of communication channel between districts and IS in organizational basis and with certain means. MANREC can provide necessary resources for opening communication channel between districts and IS.

Attachment 1

PDM of the Programme II-4

(Cooperative Channeling within Irrigation Sector Establishment) under ZIMP - *Tentative*

Project Name: Zanzibar Irrigation Master Plan Duration: 2003 - 2020 (18 years)

Project Area: Zanzibar Target Agency: MANREC Date: August 2002

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Super Goal To stimulate and facilitate agricultural sector growth, and to reduce rural poverty			
Overall Goal To attain the objectives of ZIMP by means of well harmonized performing of every parties concerned in Irrigation Sector(IS)	Performance of every parties concerned irrigation sector (DARI, district office, and farmers group etc.) are improved. ZIMP is fulfilled almost on schedule.	Progress Reports of ZIMP since 20XX	Other related programmes of ZIMP are animatedly implemented as scheduled.
Project Purpose Properly linked mandate and duties of each agency in irrigation sector are established.	By 20XX, every parties in irrigation sector start to work fully under the cooperative mandate.	Note of approval by the Government Result of work investigation for every parties in irrigation sector	Organization of IS and LGAs are re-structured as proposed in other institutional improvement programme. Necessary official back-up is properly provided to irrigation sector so as to maintain the application of the mandate.
Outputs 1. Cooperative mission statement of every parties in irrigation sector is established in consideration with linkage each other. 2. Cooperative Duties and Mandate of irrigation sector is established in line with the Mission statements.	The cooperative mission statement of irrigation sector is approved and proclaimed by the Government. By 20XX, the cooperative duties and mandate is in effective.	Record of official proclamation Report on-the-spot investigation.	Staff of every offices in irrigation sector is filled up or replaced to meet the requirement of fulfill the cooperative duties and mandate.
Activities 1-1Review existing each mission for the agencies in irrigation sector.. 1-2 Prepare a plan of new cooperative mission statement of the agencies in irrigation sector. 1-3 Finalize the plan of cooperative mission statement to add to the previous ones.	**Inputs** **Donor** Preparation Team 1) Task management 1 month 2) Institution 0.5 month 3) Regulation specialist 0.5 month 4) Irrigation development 1 month Subject specialist for the subject of task duties (as required)	**GOZ** Personnel 1) Counterparts in each subject Equipment 1) Office L.S. 2) Others L.S.	All necessary arrangement for enforcement of the cooperative duties and mandate will be fulfilled on schedule by concerned section in MANREC.

Attachment 1

2-1Study demands to be included into the new cooperative duties standard of irrigation sector. 2-2Review previous duties and mandate of irrigation sector. 2-3Finalize a plan of cooperative task duties standard of irrigation sector. 2-4 prepare the Cooperative Duties and Mandate of irrigation sector	Budget 1) Salaries and necessary expenses for counterparts 2) Necessary expenditures in internal investigations. Equipment 1) Computer system L.S. 2) Office equipment L.S. 3) Others L.S. Budget Some part of expenditures of local activities related to the Project.	**Preconditions** It is clearly confirmed the needs of establishment of certain cooperative task duties and mandate of irrigation sector is recognized in MANREC. MANREC can provide necessary resources to IS so that IS works as required in execution of this programme.

Attachment 1

PDM of the Programme II-5

(Sub-Sectors' Coordination System Establishment) under ZIMP - *Tentative*

Project Name: Zanzibar Irrigation Master Plan Duration: 2003 - 2020 (18 years)

Project Area: Zanzibar Target Agency: MANREC Date: August 2002

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Super Goal To stimulate and facilitate agricultural sector growth, and to reduce rural poverty			
Overall Goal To attain the objectives of NIMP by means of well coordinated supporting of other sub-sectors.	Performances of other sub-sectors concerned irrigated agriculture (research, extension, rural development, education, health etc.) are coordinated.	Progress Reports of new irrigation scheme implementation and monitoring for existing irrigation schemes since 20XX	Other related programmes of ZIMP are animatedly implemented as scheduled.
Project Purpose Proper coordination directive among every sub-sectors related to irrigated agriculture are established.	By 20XX, every sub-sectors related to irrigated agriculture start to consult the coordination directive when needed.	Note of approval by the Government Result of interview survey to sub-sectors concerning to irrigated agriculture.	Necessary official supports are properly provided from sub-sectors to irrigation sector so as to maintain irrigated agriculture at the developed areas, and develop new areas.
Outputs 1. Coordination system (or directive and rules system) among sub-sectors related to irrigated agriculture development are established. 2. The coordination system among sub-sectors works on retaining of good progress of irrigated agriculture.	The coordination system is approved and proclaimed by the Government. By 20XX, the coordination system is in effective.	Record of official proclamation Report on-the-spot investigation.	Sub-sectors related to irrigated agriculture are cooperative to retain good progress of irrigated agriculture in rural areas.
Activities 1-1Design coordination structure of sub-sectors related to irrigated agriculture development. 1-2 Prepare a plan of coordination system among sub-sectors	**Inputs** **Donor** Preparation Team 1) Task management 0.5 month 2) Institution 0.5 month 3) Regulation specialist	**GOZ** Personnel 1) Counterparts in each subjects from related sub-sectors	All necessary arrangement for enforcement of the coordination system will be fulfilled on schedule by MANREC.

Attachment 1

related to irrigated agriculture development 1-3 Finalize the plan of coordination system. 2-Establish the coordination system in the concerned sub-sectors.	0.5 month 4) Irrigated agriculture 0.5 month Subject specialist for the subject of task duties (as required) Equipment 1) Computer system L.S. 2) Office equipment L.S. 3) Others L.S. Budget Some part of expenditures of local activities related to the Project.	Equipment 1) Office L.S. 2) Others L.S. Budget 1) Salaries and necessary expenses for counterparts 2) Necessary expenditures in internal investigations.	**Preconditions** It is clearly confirmed the needs of establishment of certain coordination system of related sub-sectors is recognized by MANREC. MANREC can provide necessary resources to Irrigation Sector (IS) so that IS works as required in execution of this programme.

Attachment 1

PDM of the Programme IV-4

(LGAs Networking System Establishment) under ZIMP - *Tentative*

Project Name: Zanzibar Irrigation Master Plan Duration: 2003 - 2020 (18 years)

Project Area: Zanzibar Target Agency: MANREC Date: August 2002

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Super Goal To stimulate and facilitate agricultural sector growth, and to reduce rural poverty			
Overall Goal To attain the objectives of ZIMP by means of well facilitation of network system in the office concerning to irrigation development under the districts.	In 20XX, response of the irrigation offices of districts is improved. Number of official communication of districts concerning to irrigation development through the network is more than 3 time of the same in 2002.	Record of network performance in 2002 and 20XX	Other related programmes of ZIMP are animatedly implemented as scheduled.
Project Purpose Irrigation offices of districts are enabled to access intra-new of Irrigation Sector (IS) individually and at any time, so as to communicate any matters of irrigation development.	By 20XX, more than 80 % of all irrigation offices of districts are able to access IS's intra-network system individually at their office.	Report on-the-spot inspection for accessibility of internet to the irrigation offices of districts.	Good circumstance for utilization of internet and its management system is maintained in the districts. Sound moral of Irrigation offices' staff in utilization of the internet are kept.
Outputs 1. Information facilities so as to access to internet is installed in the irrigation offices of districts. 2. Staff of the irrigation offices of districts can operate the installed system to access to internet. 3. The network system linked to internet installed in the irrigation offices of districts utilize effectively for the purpose of irrigation development.	By 20XX, installation of necessary information equipment in order to link to internet is completed for all irrigation offices of districts.	Report on-the-spot investigation for the irrigation offices of districts.	Staff concerning IS can operate intra-networks individually, otherwise, training and short course for learning are provided properly.
Activities 1-1Procure necessary equipment to irrigation offices of districts in order to access to internet. 2-1 Train staff of irrigation offices of districts so as to utilize internet in his duties for	**Inputs** **Donor** Network specialist (as required) Equipment	**GOT** Budget 1) Some portion of the budget for installation of lines for networking	All necessary arrangement for installation within the programme will be fulfilled on schedule by concerned section in districts.

Attachment 1

irrigation development. 3-1Make a rule for utilization of the network for official use only.	1) Computer system L.S. 2) Equipment for networking L.S. 3) Others L.S. Budget Some part of expenditures of local activities related to the programme.	2) Some portion of the budget for installation of necessary equipment 3) Necessary expenditures in operation of the system.	**Preconditions** Local Government and/or districts can provide necessary resources for the execution of this programme

Attachment 1

PDM of the Programme IV-5

(Existing Scheme Monitoring System Development) under ZIMP - *Tentative*

Project Name: Zanzibar Irrigation Master Plan Duration: 2003 - 2020 (18 years)

Project Area: Zanzibar Target Agency: MANREC Date: August 2002

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Super Goal To stimulate and facilitate agricultural sector growth, and to reduce rural poverty			
Overall Goal To attain the objectives of ZIMP through proper monitoring of existing schemes.	a) XX existing irrigation scheme (more than 80 % of all) are monitored properly. b) Technical solution will be given to the problems in the monitored schemes. The fact giving solution is recorded.	Output of the Monitoring system	Other related programmes of ZIMP are animatedly implemented as scheduled.
Project Purpose An existing irrigation monitoring system is established. The monitoring system starts its operation as required.	a) By 20XX, the Project for establishment of the monitoring system is completed. b) In 20XX, the monitoring system starts its operation.	Annual report of the existing irrigation scheme monitoring system operation	No remarkable obstacles on establishment of the existing irrigation scheme monitoring system exist, or removed it when disrupted.
Outputs 1. Hardware of the monitoring system is stationed. 2. Software of the monitoring system (database of schemes, and necessary information etc.) is prepared. 3. Operation and utilized arrangement is systemized. 4. Up-dating system for the monitoring system is systemized.	Mechanical function of the hardware is tested for good functioning. Usefulness of the software is tested. By 20XX, the monitoring system starts its operation.	Report of the mechanical function test for the hardware. Report of the test for the software. Record of performance of the monitoring system	Institutional arrangement for the establishment of the existing irrigation scheme monitoring system is successfully given without any delay. All necessary arrangement for the establishment of the monitoring system is taken on schedule.
Activities 1-1Design computer system of the monitoring system 1-2Procure computer set (or arrange existing computer) for the monitoring system operation .	**Inputs** **Donor** *Study Team* 1) Monitoring 1 month 2) Computer system 1 month 3) Database 1 month 4) System operator 1 month	**GOZ** *Personnel* 1) Counterparts in each subject Equipment 1) Office L.S.	Participation and cooperation of beneficiaries in the existing irrigation schemes will be kept.

Attachment 1

2-1Design database and software for the monitoring system. 2-2 Investigate condition of existing irrigation system. 2-3 Prepare database and information file for the investigated condition of existing irrigation scheme. 3-1Design management structure for the monitoring system operation. 3-2 Arrange institutional set-up for the operation of the monitoring system in IS and designated districts. 3-3 Train staff concerned to operation of the monitoring system 4-1Plan re-investigation cycle for the latest condition of the existing irrigation schemes. 4-2 Systemize execution of the re-investigation study periodically.	Equipment 1) Computer system L.S. 2) network hardware L.S. 3) Others L.S. Budget Some part of expenditures of local activities related to the Project. Investigation study of present condition of existing irrigation scheme. Budget for installation of computer system and database	2) Furniture and Acces. L.S. 3) Tel. and business eq. L.S. Budget 1) Salaries and necessary expenses for counterparts 2) Allowances and expenses of installation of the monitoring system 3) Necessary expenditures in operation of the monitoring system	**Preconditions** Necessity of proper monitoring for the existing irrigation system is recognized by almost personnel concerned in Irrigation Sector (IS) and LGAs.

Attachment 1

PDM of the Programme V-5

(Integrated Irrigation Development Model Establishment) under ZIMP - *Tentative*

Project Name: Zanzibar Irrigation Master Plan | Duration: 2003 - 2020 (18 years)

Project Area: Zanzibar | Target Agency: MANREC | Date: August 2002

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Super Goal To stimulate and facilitate agricultural sector growth, and to reduce rural poverty			
Overall Goal To attain the objectives of ZIMP through replicating the pilot models' effects giving from this programme to other areas widely.	By 20XX, DADOs of all districts are informed the outcomes of the integrated irrigation pilot models of this programme.	Record of series of seminar on the integrated irrigation development models	Other related programmes of ZIMP are animatedly implemented as scheduled.
Project Purpose Pilot models of integrated irrigation development which is irrigated agricultural development with fulfilling rural development comprehensively, are implemented. The pilot models sustain outcomes of the development.	a) By 20XX, XX pilot model schemes are completed. b) The pilot models are monitored periodically conditions of productivity and living standard.	Completion report of Pilot model establishment Monitoring reports for the pilot models	Good cooperation of the related sub-sectors are given. IS and MANREC appeals to LGAs about the effect of integrated irrigation development showing outcomes of the pilot models.
Outputs 1. Development concept of integrated irrigation development is clarified. 2. Method and modality for integrated irrigation development are established. 3. Works for pilot model development are implemented at selected sites (villages). 4. A monitoring routine is established, and starts operation.	The concept is agreed with MANREC officially. The methods are finalized through discussions with other sub-sectors cooperation (road, water supply etc.). By 20XX, XX pilot models are established. By 20XX, the monitoring system starts its operation.	Note of agreement issued by MAFS about the concept of integrated irrigation development Report of the discussion held Report of pilot model implementation Monitoring reports	All necessary arrangement for the establishment of pilot model is taken on schedule. Related sub-sectors hold right understanding for integrated irrigation development.
Activities 1-1 Conceptualize needs and importance of integrated irrigation development in Tanzania 2-1Study necessity of integrated rural development leading by irrigation development. 2-2 Work out methods and modalities for integrated irrigation development.	**Inputs** **Donor** Study Team 1) Irrigation 1 month 2) Rural development 1 month 3) Irrigated agriculture 1 month 4) Development innovation 1 month 5) Extension 1 month	**GOZ** Personnel 1) Counterparts in each subject Equipment 1) Office L.S. 2) Furniture and Acces. L.S. 3) Tel. and business eq. L.S.	Participation and cooperation of beneficiaries in the pilot model sites will be kept. Institutional arrangement for the establishment of the pilot model is successfully given without any delay.

Attachment 1

3-1 Make a criteria of model site selection. 3-2 Select pilot model sites in consideration with the criteria. 3-3 Make implementation plan for the pilot model establishment by the selected sites. 3-4 Implement pilot models establishment plan. 4-1 Make a plan of monitoring and monitoring system. 4-2 Realize the monitoring plan.	Equipment 1) Vehicles L.S. 2) Office equipment L.S. 3) Others L.S. Budget Some part of expenditures of local activities related to the Project. Investigation study of present condition of rural condition Cost of works of the pilot models implementation.	Budget 1) Salaries and necessary expenses for counterparts 2) Allowances and expenses of installation of the monitoring system 3) Necessary expenditures in operation of the monitoring system	**Preconditions** MANREC properly recognizes the necessity and importance for integrated irrigation development in Tanzania