

CHAPTER 8 CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

The Study presents the framework and strategies for sustainable irrigation development for Zanzibar to the target year of 2020, aiming to contribute to creation of an enabling and conducive environment for improving the productivity and profitability of the agricultural sector.

In order to achieve this target, the Study prepared the development programme to the year 2020 considering five elements: Economically Sound, Technically Appropriate, Sociologically Sustainable, Environmentally Friendly and Institutionally Reliable. As a result, the Study determined 31 components of a Subject-wise Improvement Program and selected 16 Scheme-wise Developments from the "A", "B" and "C" Groups. These programs were grouped into time zones for implementation, namely Short Term (2003 – 2007), Medium Term (by 2012) and Long Term (by 2020), taking into account the need for urgent execution of the Subject-wise Improvement Programme and priority ranking for the Scheme-wise Development Programme.

It is expected that completion of the proposed Scheme-wise Development Programme supported by the Subject-wise Improvement Programme would increase additionally the rice production to 10,000 tons at 2020. This increase would bring about the cost saving of about US\$ 2.3 million for rice import at 2020. In addition, it would result in an increase of farm income. The income for a single crop season would be estimated at US\$ 450 for a typical smallholder which would be about three times of current level. Furthermore, it would contribute to creation of job opportunity. The additionally required farm labor would be estimated at 222,000 man-days at 2020 at the national level. From these impacts, it is concluded that the investment to the implementation of the proposed Scheme-wise Development Programme supported by the Subject-wise Improvement Programme would be appropriate from a national viewpoint.

In Unguja, nine pump irrigation schemes using groundwater are listed in the results of the inventory survey. These pump facilities mostly require renewal because of severe damage rather than deterioration. According to the preliminary economic and financial analysis, the pump schemes would be economically viable, but financially un-feasible even if high-valued crops were introduced. This would be mainly due to the small holding size per household, high operation cost and low marketing price. In Unguja, the abundant water resource is groundwater, which requires pumping, and surface water is much more limited. Due to the

importance of irrigation development for stable food production, the government should provide certain subsidies for the pump irrigation schemes if the financial situations of the surrounding farmers do not improve.

In preparation of development programme, the Study established a prioritization system for the implementation of many irrigation schemes, and then ranked them in priority order for implementation using the data and information obtained through the inventory survey. The availability of data and information on the schemes largely affected the priority ranking and therefore it is essential to check for the availability of new data at all times, and if necessary review and modify the selected schemes for early implementation using this updated information.

8.2 Recommendations

(1) Urgent Commencement of ZIMP Implementation

The food shortage poses a serious problem in Zanzibar. The increasing population pressure will further aggravate the situation if appropriate countermeasure are not taken in time. Irrigation development is a key factor to improve the productivity in agriculture. It is therefore recommended that the ZIMP be implemented as early as possible.

(2) Urgent Need of Strengthening the DARI

The Study presents the needs of implementation of 31 components in the Subject-wise Improvement Programme and 16 irrigation schemes in the Scheme-wise Development Programme. The DARI of MANREC will be responsible for smooth implementation of them as a coordination agency with the different organizations involved. However, the present constitution of DARI makes it, unfortunately, incapable of achieving the demarcated roles of coordinating and harmonizing the different organizations pertaining to irrigation development and, more importantly, unable to make prompt decisions. The DARI also needs stronger mandates of the personnel administration and budget allocation and generally requires a stronger institutional and organizational position.

The Institutional Strengthening of the DARI has the following three sub-components:

- Reform of DARI with strengthening of monitoring section
- Active utilization of Kizimbani Agricultural Training Institute (KATI)
- Quick capacity building of existing technical staff

The plan should involve a stage-wise program responding to the short term (2003-2007), the medium term (by 2012) and the long term (by 2020). In order to

smoothly implement this stage-wise reform of the DARI, it is essential to organize a task force of experts, which is the important first step toward sustainable and self-reliant irrigation development and a trigger of other institutional developments.

(3) Legal Framework Strengthening for Irrigation Development

A sound legal framework is a prerequisite for successful farmers-oriented irrigation development, empowering farmers and the other private sectors to enable them to secure their ownership and take full responsibility for all decisions and matters involved in development, operation and management of the irrigation schemes. Legal status of irrigators' group, land tenure and water right, as well as ownership of and responsibility for irrigation infrastructure should be clearly defined for irrigation development. Presently these items are defined disconnectedly by a number of separate laws. In particular, a new legal framework exclusively for the irrigators' groups appears important and necessary for securing their ownership and self-reliant irrigation development.

A consultancy work for establishment of the legal framework, possibly a new Act, Ordinance or Regulations, should be undertaken through the initiative of the DARI in cooperation with the relevant governmental agencies, lawyers and technical specialists.

(4) Arrangement of Development and Recurrent Expenditures for Irrigation Development

The inadequate financial resource is one of major constraints to irrigation development. According to the past data, only 1.89 % of total government development expenditure was allocated to irrigation development. This amount could not cover adequately the recommended irrigation development. Based on this figure and assuming an increase of total government expenditures as a proportion of GDP growth rate, the Base Case budget for irrigation development was determined. An increase of about 35 % was projected for the High Case. The High Case budget would enable implementation of 31 components of Subject-wise Improvement Programme and 16 Scheme-wise Development Programme, which would lead to about 1,000 ton higher rice production than that for the Base Case. It is deemed that the required budget under High Case, would still be a procurable amount. It is thus recommended that the government should arrange necessary development and recurrent costs for the High Case, as a minimum.

(5) Urgent Need of Preparation of Water Right Act

At present, Zanzibar has no act stipulating water right. Such legislation is indispensable for ensuring irrigation development and also for avoiding any water conflict among related stakeholders. Zanzibar has significant water resources as a whole, however topographic conditions restrict the usable water amount for irrigation. In addition, increasing population pressure will create a competitive situation between irrigation water requirements and domestic water use. In order to avoid any water conflict, and from viewpoint of social environment, a Water Right Act should be prepared urgently.

(6) Need of Inter-coordination

Irrigation provides an effective environment for stabilization and increase of agricultural production. There is no doubt that irrigation itself directly links with the stabilization of agricultural production. But, in improvement of agricultural production, irrigation becomes only one of the factors for creating the physiologically suitable environment for enhancing the agricultural production. Irrigation by itself could not realize the remarkable increase of agricultural production without assistance from other sub-sectors such as agricultural inputs and extension services.

Zanzibar is currently suffering from a food production shortage and is supplementing this by imports. The increasing population pressure is also adding to the serious deterioration in food self sufficiency. Such a serious situation should be urgently improved in the appropriate spatial and time development framework.

It is therefore recommended that other sub-sectors such as agricultural inputs and agricultural extension services should be developed under the close inter-coordination with the irrigation sub-sector, to enhance the respective effects toward an increase in agricultural production.

In addition, use of groundwater should be carefully planned and designed under the inter-ministerial coordination, to avoid any water conflict among water users and overuse of limited groundwater resource.

(7) Updating of ZIMP

The ZIMP provides the overall framework and strategies for irrigation development toward the year 2020, and is generally consistent with the ASP. The ZIMP was formulated using currently available data and information obtained through the inventory survey. Therefore, when additional data and/or updated data become available, the ZIMP, especially the priority ranking of schemes, should be reviewed and modified using the established prioritization system used herein.

Also, actual progress should be reflected by updating the ZIMP from time to time. In order to reflect the actual progress accurately, monitoring is essential. In particular, monitoring should focus on the effects of subject-wise improvement, and the results should be reflected in the updated ZIMP. The monitoring and update of the ZIMP should be carried out by the central government, namely DARI of MANREC in cooperation with DADO.

Tables

Table 4.4.1 List of Inventoried Schemes

SERIAL NO	REGION	DISTRICT	NAME	Present Condition	Type of Irrigation	Scheme Scale	Irrigated Area (ha)	Potential Area (ha)
1101	NORTH - UNGUJA	NORTH 'A' - UNGUJA	Chaani	3 Rainfed	1 Reservoir	3 Large		250
1102	NORTH - UNGUJA	NORTH 'A' - UNGUJA	Kibokwa	2 Abandoned	1 Reservoir	3 Large		250
1201	NORTH - UNGUJA	NORTH 'B' - UNGUJA	Kilombero	2 Abandoned	3 GW	3 Large		850
1202	NORTH - UNGUJA	NORTH 'B' - UNGUJA	Kipange	2 Abandoned	1 Reservoir	3 Large		400
1203	NORTH - UNGUJA	NORTH 'B' - UNGUJA	Mahonda/Chechele	3 Rainfed	1 Reservoir	3 Large		300
1204	NORTH - UNGUJA	NORTH 'B' - UNGUJA	Upinja	3 Rainfed	3 GW	3 Large		418
1301	SOUTH - UNGUJA	CENTRAL	Bambi	2 Abandoned	3 GW	2 Medium		168
1302	SOUTH - UNGUJA	CENTRAL	Cheju Irrigation Scheme	1 Existing	3 GW	3 Large	42	1198
1303	SOUTH - UNGUJA	CENTRAL	Kisima Mchanga	3 Rainfed	3 GW	3 Large		800
1304	SOUTH - UNGUJA	CENTRAL	Koani/Ubango	3 Rainfed	2 Diversion	1 Small		20
1305	SOUTH - UNGUJA	CENTRAL	Mchangani	3 Rainfed	2 Diversion	3 Large		300
1306	SOUTH - UNGUJA	CENTRAL	Mwera	1 Existing	2 Diversion	1 Small	12	12
1307	SOUTH - UNGUJA	CENTRAL	Ubago	3 Rainfed	3 GW	1 Small		14
1401	SOUTH - UNGUJA	SOUTH	Mitende	3 Rainfed	3 GW	3 Large		330
1402	SOUTH - UNGUJA	SOUTH	Misyuni	3 Rainfed	3 GW	3 Large		586
1501	URBAN WEST	WEST	Bumbwi Sudi	1 Existing	3 GW	3 Large	136	560
1502	URBAN WEST	WEST	Mtwango Irrigation Scheme	1 Existing	2 Diversion	2 Medium	78	120
1503	URBAN WEST	WEST	Tomondo, Kijitoupele and Kwarara	3 Rainfed	2 Diversion	2 Medium		53
2601	NORTH - PEMBA	MICHEWENI	Bule	3 Rainfed	1 Reservoir	1 Small		12
2602	NORTH - PEMBA	MICHEWENI	Chwaka	3 Rainfed	1 Reservoir	1 Small		17
2603	NORTH - PEMBA	MICHEWENI	Kinyakuzi	1 Existing	1 Reservoir	1 Small	8	40
2604	NORTH - PEMBA	MICHEWENI	Kinyasini	3 Rainfed	1 Reservoir	1 Small		23
2605	NORTH - PEMBA	MICHEWENI	Makwararani	1 Existing	1 Reservoir	2 Medium		114
2606	NORTH - PEMBA	MICHEWENI	Matangatwani	3 Rainfed	1 Reservoir	1 Small		19
2607	NORTH - PEMBA	MICHEWENI	Mgongombe	3 Rainfed	1 Reservoir	1 Small		41
2608	NORTH - PEMBA	MICHEWENI	Mshashani	3 Rainfed	1 Reservoir	1 Small		25
2609	NORTH - PEMBA	MICHEWENI	Mwanasozza	3 Rainfed	1 Reservoir	1 Small		32
2610	NORTH - PEMBA	MICHEWENI	Ngwia	3 Rainfed	1 Reservoir	2 Medium		76
2611	NORTH - PEMBA	MICHEWENI	Saninga	1 Existing	1 Reservoir	1 Small	16.4	38
2701	NORTH - PEMBA	WETE	Gando	3 Rainfed	1 Reservoir	1 Small		24
2702	NORTH - PEMBA	WETE	Kwalempona	2 Abandoned	1 Reservoir	2 Medium	13.6	53
2703	NORTH - PEMBA	WETE	Mangwena	1 Existing	1 Reservoir	1 Small	10	29
2704	NORTH - PEMBA	WETE	Mipoooni	2 Abandoned	1 Reservoir	2 Medium	13.6	65
2705	NORTH - PEMBA	WETE	Mleteni	3 Rainfed	1 Reservoir	1 Small		31
2706	NORTH - PEMBA	WETE	Tungamaa	1 Existing	1 Reservoir	1 Small	6	33
2707	NORTH - PEMBA	WETE	Weni	3 Rainfed	1 Reservoir	1 Small		35
2801	SOUTH - PEMBA	CHAKE CHAKE	Dobi	3 Rainfed	1 Reservoir	1 Small		25
2802	SOUTH - PEMBA	CHAKE CHAKE	Kwanavi	3 Rainfed	1 Reservoir	1 Small		22
2803	SOUTH - PEMBA	CHAKE CHAKE	Kwapweza	2 Abandoned	1 Reservoir	2 Medium		62
2804	SOUTH - PEMBA	CHAKE CHAKE	Mabieni	3 Rainfed	1 Reservoir	1 Small		35
2805	SOUTH - PEMBA	CHAKE CHAKE	Mlelele	3 Rainfed	1 Reservoir	2 Medium		73
2806	SOUTH - PEMBA	CHAKE CHAKE	Ngeu	3 Rainfed	1 Reservoir	1 Small		5
2807	SOUTH - PEMBA	CHAKE CHAKE	Tibirinzi	3 Rainfed	1 Reservoir	1 Small	6	25
2901	SOUTH - PEMBA	MKOANI	Donge Manyiga	3 Rainfed	1 Reservoir	1 Small		19
2902	SOUTH - PEMBA	MKOANI	Egeani	3 Rainfed	1 Reservoir	1 Small		12
2903	SOUTH - PEMBA	MKOANI	Girama	3 Rainfed	1 Reservoir	1 Small		33
2904	SOUTH - PEMBA	MKOANI	Kiguni	3 Rainfed	1 Reservoir	1 Small		16
2905	SOUTH - PEMBA	MKOANI	Kimbuni	2 Abandoned	1 Reservoir	1 Small		21
2906	SOUTH - PEMBA	MKOANI	Kwamachigi	3 Rainfed	1 Reservoir	2 Medium		51
2907	SOUTH - PEMBA	MKOANI	Kwankoba	3 Rainfed	1 Reservoir	2 Medium		93
2908	SOUTH - PEMBA	MKOANI	Machigini/Gae la Mtungi	2 Abandoned	1 Reservoir	3 Large		547
2909	SOUTH - PEMBA	MKOANI	Makunge	3 Rainfed	1 Reservoir	2 Medium		54
2910	SOUTH - PEMBA	MKOANI	Maotwe	3 Rainfed	1 Reservoir	1 Small		13
2911	SOUTH - PEMBA	MKOANI	Masingini	3 Rainfed	1 Reservoir	1 Small		15
2912	SOUTH - PEMBA	MKOANI	Maumbwini	3 Rainfed	1 Reservoir	1 Small		29
2913	SOUTH - PEMBA	MKOANI	Mchangapwaga	3 Rainfed	1 Reservoir	1 Small		10
2914	SOUTH - PEMBA	MKOANI	Mzingani	2 Abandoned	1 Reservoir	1 Small		25

Table 6.3.1 Projection of Financial Resources Envelope for ZIMP (Base Case)

(Unit: Tsh. Million)						
Year	(1) GOZ Development Expenditure	(2) Local Funds of (1) (1) x 20%	(3) Development Expenditure Allocated to Irrigation Development (Local) (2) x 2.0%	(4) Development Expenditure Allocated to Irrigation Projects (Foreign) (3) x 6	(5) Operation & Maintenance Expenditure	(6) Financial Resources Envelope (3)+(4)+(5)
2003/04	1,189	238	5	29	84	117
2004/05	1,248	250	5	30	88	123
2005/06	1,311	262	5	31	92	129
2006/07	1,402	280	6	34	99	138
2007/08	1,501	300	6	36	106	148
2008/09	1,606	321	6	39	113	158
2009/10	1,718	344	7	41	121	169
2010/11	1,838	368	7	44	130	181
2011/12	2,004	401	8	48	141	197
2012/13	2,184	437	9	52	154	215
2013/14	2,381	476	10	57	168	235
2014/15	2,595	519	10	62	183	256
2015/16	2,829	566	11	68	200	279
2016/17	3,083	617	12	74	217	304
2017/18	3,361	672	13	81	237	331
2018/19	3,663	733	15	88	258	361
2019/20	3,993	799	16	96	282	393
2020/21	4,352	870	17	104	307	429
Grand Total			169	1,014	2,981	4,164
(@Tsh. 950/US\$, million US\$)				1.2	3.1	4.4

Table 6.3.2 Projection of Financial Resources Envelope for ZIMP (High Case)

(Unit: Tsh. Million)						
Year	(1) GOZ Development Expenditure	(2) Local Funds of (1) (1) x 20%	(3) Development Expenditure Allocated to Irrigation Development (Local) (2) x 3.0%	(4) Development Expenditure Allocated to Irrigation Projects (Foreign) (3) x 9	(5) Operation & Maintenance Expenditure	(6) Financial Resources Envelope (3)+(4)+(5)
2003/04	1,223	245	7	66	85	158
2004/05	1,297	259	8	70	90	168
2005/06	1,374	275	8	74	95	178
2006/07	1,484	297	9	80	103	192
2007/08	1,603	321	10	87	111	207
2008/09	1,731	346	10	93	120	224
2009/10	1,870	374	11	101	129	242
2010/11	2,019	404	12	109	140	261
2011/12	2,221	444	13	120	154	287
2012/13	2,443	489	15	132	169	316
2013/14	2,688	538	16	145	186	347
2014/15	2,957	591	18	160	205	382
2015/16	3,252	650	20	176	225	420
2016/17	3,577	715	21	193	248	462
2017/18	3,935	787	24	213	272	509
2018/19	4,329	866	26	234	300	559
2019/20	4,762	952	29	257	330	615
2020/21	5,238	1,048	31	283	363	677
Grand Total			288	2,592	3,323	6,203
(@Tsh. 950/US\$, million US\$)				3.0	3.5	6.5

Table 6.3.3 Projection of Financial Resources Envelope for ZIMP (Low Case)

(Unit: Tsh. Million)						
Year	(1) GOZ Development Expenditure	(2) Local Funds of (1) (1) x 20%	(3) Development Expenditure Allocated to Irrigation Development (Local) (2) x 1.0%	(4) Development Expenditure Allocated to Irrigation Projects (Foreign) (3) x 3	(5) Operation & Maintenance Expenditure	(6) Financial Resources Envelope (3)+(4)+(5)
2003/04	1,172	234	5	14	83	102
2004/05	1,225	245	5	15	87	107
2005/06	1,280	256	5	15	91	112
2006/07	1,337	267	5	16	95	117
2007/08	1,398	280	6	17	100	122
2008/09	1,460	292	6	18	104	127
2009/10	1,526	305	6	18	109	133
2010/11	1,595	319	6	19	114	139
2011/12	1,667	333	7	20	119	145
2012/13	1,742	348	7	21	124	152
2013/14	1,820	364	7	22	130	159
2014/15	1,902	380	8	23	135	166
2015/16	1,988	398	8	24	142	173
2016/17	2,077	415	8	25	148	181
2017/18	2,170	434	9	26	155	189
2018/19	2,268	454	9	27	162	198
2019/20	2,370	474	9	28	169	207
2020/21	2,560	512	10	31	176	217
Grand Total			126	379	2,242	2,746
(@Tsh. 950/US\$, million US\$)				0.5	2.4	2.9

Table 6.3.4 Staple Foods Demand Forecast

Crops	Zanzibar					(Unit: ton)				
	Unmilled kg	Edible kg	exclude loss	Kcal/ 100g	Total Kcal	2005 kg	2010 kg	2015 kg	2020 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					
		554	g/day		1,793					Kcal/day/person (staple foods only)

Table 6.7.1 Results of Priority Grouping

Serial No	Isiati	Region	District	Name	Type1	Type2	Type3	Type4	Types	Irrigated Area (ha)	Potential Area (ha)	EIRN	Score					Total Score	Grouping
													Technical	Economic	Environment	Rate of Implementation	Social		
2503	2 Pemba	NORTH - PEMBA	MICHEWENI	Kinyakuzi	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 Abandon	1 Reservoir	1 Gravity	3 Large		250	19.0%	19	32	8	1	13	74	A
1502	1 Unguja	URBAN WEST	WEST	Mhwango 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 Abandon	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	Saniga	1 Improvement	1 Existing	1 Reservoir	1 Gravity	1 Small	16.4	38	13.7%	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	Bunbwi 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	1 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	Miemele	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	2 Medium		79	14.3%	17	31	8	3	5	64	B
2803	2 Pemba	SOUTH - PEMBA	CHAKE CHAKE	Kwapweza	2 Restore	2 Abandon	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
2604	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	Chanu	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 Abandon	1 Reservoir	1 Gravity	2 Medium	13.6	53	8.2%	19	25	10	1	5	60	C
2908	2 Pemba	SOUTH - PEMBA	MKOANI	Mschigini/Gac la Mtungi	2 Restore	2 Abandon	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 Abandon	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	58	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	58	C
2704	2 Pemba	NORTH - PEMBA	WETE	Mipopozi	2 Restore	2 Abandon	1 Reservoir	1 Gravity	2 Medium	13.6	65	9.6%	17	25	8	1	7	58	C
2905	2 Pemba	SOUTH - PEMBA	MKOANI	Kimbuni	2 Restore	2 Abandon	1 Reservoir	1 Gravity	1 Small		21	14.8%	17	26	7	3	5	58	C
2907	2 Pemba	SOUTH - PEMBA	MKOANI	Kwanakoba	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		25	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 Abandon	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	Matungawari	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	Maheni	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	Mpong'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	Mieteni	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/Chechela	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	Giriana	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small		23	11.6%	19	23	6	1	5	54	C
1304	1 Unguja	SOUTH - UNGUJA	CENTRAL	Koani/Udongo	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 Abandon	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	Tibirizi	3 Construction	3 Rainfed	1 Reservoir	1 Gravity	1 Small	6	25	6.9%	7	20	7	3	10	47	D
2906	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	Maumbwini	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	Upanja	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	10.3%	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	Egesani	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 7.3.1 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 LGAs	Institutional improvement plan of the IS's organization is authorized. And the institutional improvement plan of the IS is carried out.	To be originally prepared
II-1	IS Working Mandate Formulation Programme	Irrigation Sector and LGAs	Proper working mandate of IS is regulated and started to be applied.	To be originally 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 originally 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 originally 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 originally 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 Contractors 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-net of IS and ZICs individually and at any time, so as to communicate any matters of irrigation development.	To be originally 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 originally 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)	Perennial 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 originally prepared

Table 7.3.2 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 working 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			<i>To be applied the outcome of component B4 for the Mainland</i>	
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			<i>To be applied the outcome of component C1 for the Mainland</i>	
III-2(1)	Planning Guideline Establishment Programme			<i>To be applied the outcome of component C2.1 for the Mainland</i>	
III-2(2)	Designing Guideline Establishment Programme			<i>To be applied the outcome of component C2.2 for the Mainland</i>	
III-3(1)	O&M Guideline Establishment Programme			<i>To be applied the outcome of component C3.1 for the Mainland</i>	
III-3(2)	Monitoring & Evaluation Guideline Establishment Programme			<i>To be applied the outcome of component C3.2 for the Mainland</i>	
III-4	Farmers' Participation in Irrigation Development Programme			<i>To be applied the outcome of component C4 for the Mainland</i>	
III-5	Village Irrigation Development Guideline Establishment Programme			<i>To be applied the outcome of component C5 for the Mainland</i>	
III-6	Farmers' O&M Manual Establishment Programme			<i>To be applied the outcome of component C6 for the Mainland</i>	
III-7	Establishment of DADP Formulation Guideline for Irrigated Agriculture Development (DADP-IA)			<i>To be applied the outcome of component C7 for the Mainland</i>	
IV-1	Technical Manuals Handling Guideline Establishment Programme			<i>To be applied the outcome of component D2 for the Mainland</i>	
IV-2	Information and Database Improvement Programme			<i>To be applied the outcome of component D3 for the Mainland</i>	
IV-3	Irrigation Development Contactors and Consultants' Listing Programme			<i>To be applied the outcome of component D4 for the Mainland</i>	

Table 7.3.2 Outline of Components of the Subject-wise Programme in ZIMP (2/2)

Reference No.	Programme Title	Target organization or groups	Location	Objectives	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	<ol style="list-style-type: none"> 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	<p>An existing irrigation monitoring system is established.</p> <p>The monitoring system starts its operation as required.</p>	<ol style="list-style-type: none"> 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				<i>To be applied the outcome of component E1.1 for the Mainland</i>
V-1(2)	Perennial Irrigation Method Improvement Programme				<i>To be applied the outcome of component E1.2 for the Mainland</i>
V-1(3)	Flood Irrigation Development Programme				<i>To be applied the outcome of component E1.3 for the Mainland</i>
V-1(4)	Small Dam Technology for Irrigation Development Establishment Programme				<i>To be applied the outcome of component E1.4 for the Mainland</i>
V-1(5)	Environmental Assessment Study for Irrigation Practice in Tanzania				<i>To be applied the outcome of component E1.5 for the Mainland</i>
V-1(6)	Study of River-Basin Approach in Irrigation Development				<i>To be applied the outcome of component E1.6 for the Mainland</i>
V-2	Hydraulic Experimental Center Establishment Programme				<i>To be applied the outcome of component E2 for the Mainland</i>
V-3	Farmers' Participation Training Programme				<i>To be applied the outcome of component E5 for the Mainland</i>
V-4(1)	Irrigated Agriculture Training Programme for Rice Production Increase				<i>To be applied the outcome of component E6.1 for the Mainland</i>
V-4(2)	Irrigated Agriculture Training Programme for Cash Crops Production Increase				<i>To be applied the outcome of component E6.2 for the Mainland</i>
V-5	Integrated Irrigation Development Model establishment Programme	Any	Nationwide	<p>Pilot models of integrated irrigation development which is irrigated agricultural development with fulfilling rural development comprehensively, are implemented.</p> <p>The pilot models sustain outcomes of the development.</p>	<ol style="list-style-type: none"> 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 7.8.1 Tentative PDM for Implementation of ZIMP

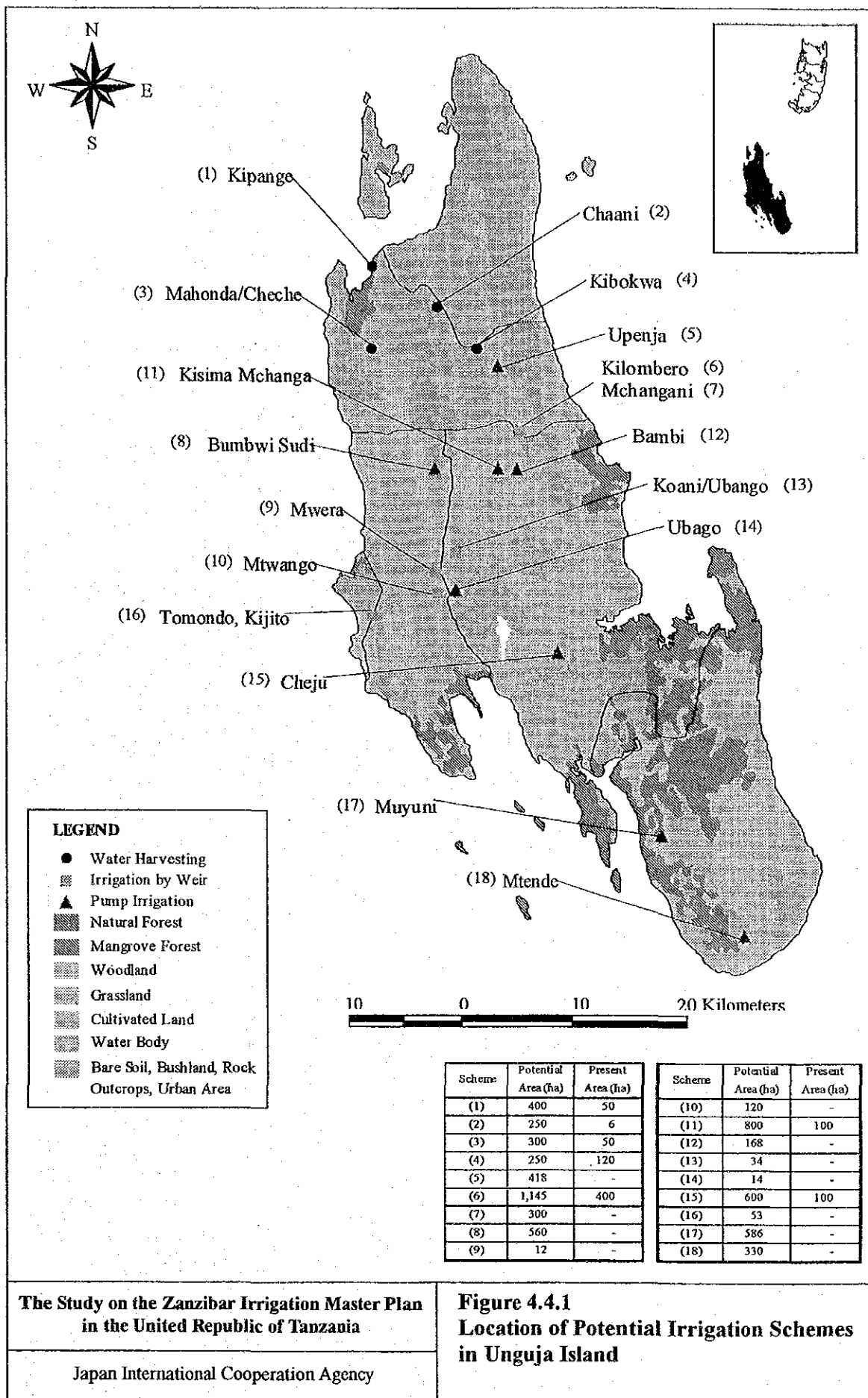
Name of Project : Zanzibar Irrigation Master Plan
 Project Area : Zanzibar in Tanzania
 Executing Agency : Ministry of Agriculture, Natural Resources, Environment and Cooperatives (MANREC)

Duration : 18 years
 Target Group : Government and Private Sector

Date : October 15, 2002

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal 1.1 Promote sustainable development of the agricultural sector for economic, social and environmental benefits of its people	1.1 Food Production progressively increases by 2020.	1.1 Monitoring reports of MANREC	<ul style="list-style-type: none"> The Government does not change the agricultural policy.
Project Purpose 2.1 Execution of sustainable irrigation development through effective use of national resources	2.1 Total irrigable area progressively increases by 2020, and stable food production is realized.	2.1 Monitoring reports of DARI, MANREC	<ul style="list-style-type: none"> The Government does not hinder the implementation of irrigation development Adequate resources are allocated.
Outputs 3.1 Irrigation facilities are rehabilitated/improved/newly constructed. 3.2 Subject-wise improvement programme for sustainable irrigation development is completed.	3.1.1 Irrigation facilities are rehabilitated/improved/newly constructed with participatory approach by 2007. - Total irrigable areas developed 624 ha 3.1.2 Irrigation facilities are rehabilitated/improved/newly constructed with farmers-oriented approach by 2012. - Total irrigable areas developed 1,066 ha 3.1.3 Irrigation facilities are rehabilitated/improved/newly constructed with self-reliant philosophy by 2020. - Total irrigable areas developed 2,383 ha 3.2.1 12 components of Subject-wise Improvement Programme are completed by 2007. 3.2.2 31 components of Subject-wise Improvement Programme are completed by 2010.	3.1.1 Monitoring reports of DARI, MANREC 3.1.2 Monitoring reports of DADO 3.1.3 Monitoring reports of DADO 3.2.1 Monitoring report of DARI and DADO 3.2.2 Monitoring report of DARI and DADO	<ul style="list-style-type: none"> Implementation of other sub-sectors (marketing of farm inputs and outputs, credit services, rural infrastructure) are executed concurrently. Required fund is available on time. DARI has enough capacity to make coordination for implementation of irrigation schemes.
Activities 4.1 Implementing Scheme-wise Development Programme 4.1.1 Construction of dam reservoir type irrigation schemes 4.1.2 Construction of diversion weir type irrigation schemes 4.1.3 Constructing pump irrigation schemes. 4.2 Implementing Subject-wise Improvement Programme 4.2.1 Implementing institutional and organizational development programme 4.2.2 Implementing research and technology programme. 4.2.3 Implementing capacity building programme 4.2.4 Implementing legal framework development programme.	Inputs Foreign Donor <ul style="list-style-type: none"> Mobilization, awareness and training costs Adequate financial assistance Cost for engineering services Cost for preparation and execution of supporting programme Zanzibar Side (1) Central government <ul style="list-style-type: none"> Arrangement of 80% of total construction cost 95 % of operation and maintenance cost for pump irrigation schemes (2) DARI <ul style="list-style-type: none"> Manpower 	<ul style="list-style-type: none"> Recurrent cost for project implementation Technical support to the private sector (2) RADO/DADO <ul style="list-style-type: none"> Manpower Technical support to the private sector (3) Farmers <ul style="list-style-type: none"> 20% of total construction cost 100% of operation and maintenance cost for surface irrigation schemes 5 % of operation and maintenance cost for pump irrigation schemes 	Pre-conditions <ul style="list-style-type: none"> Zanzibar Government raises all project funds including foreign currency portion and local currency portion.

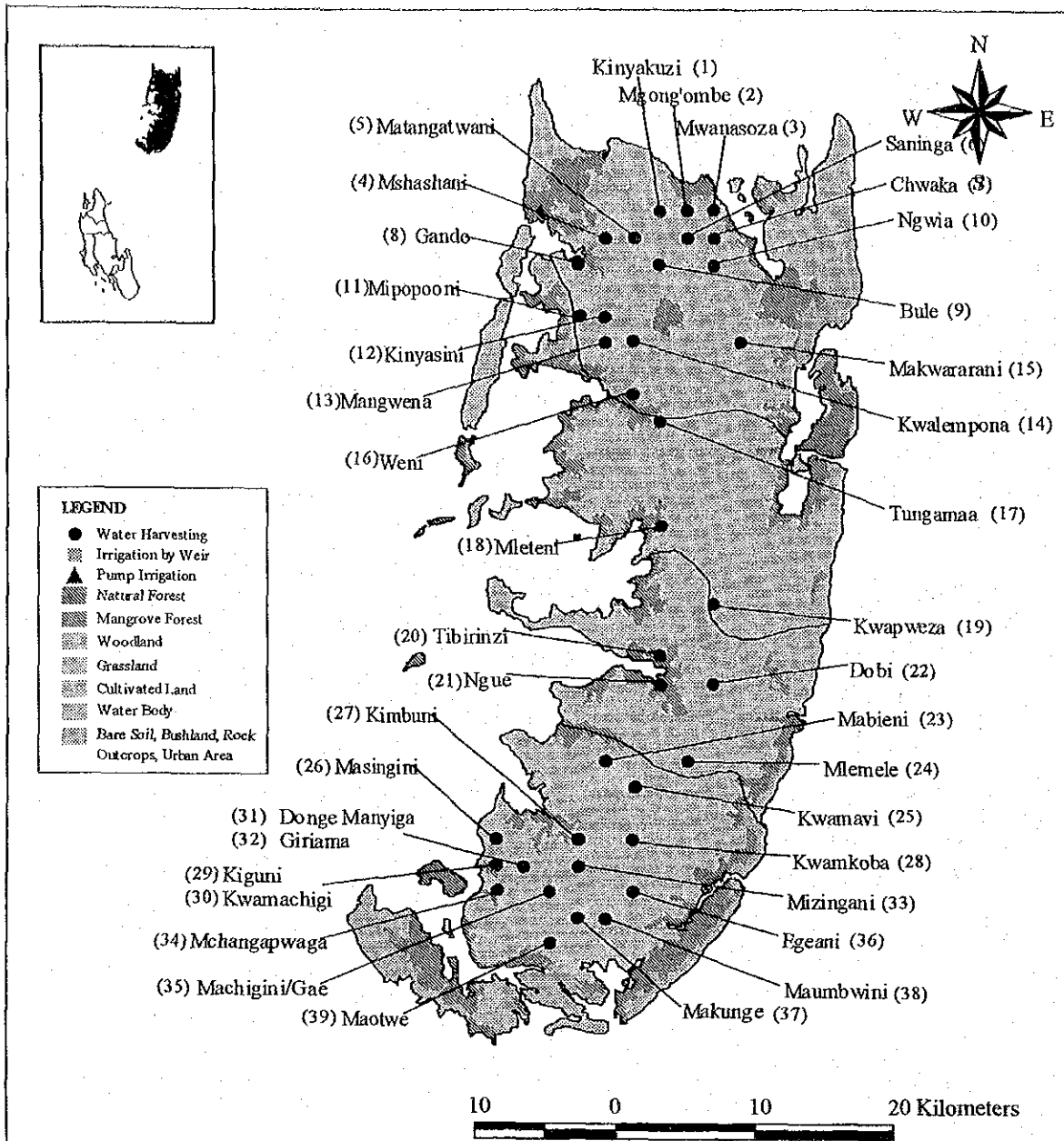
Figures



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

Japan International Cooperation Agency

Figure 4.4.1
Location of Potential Irrigation Schemes
in Unga Island



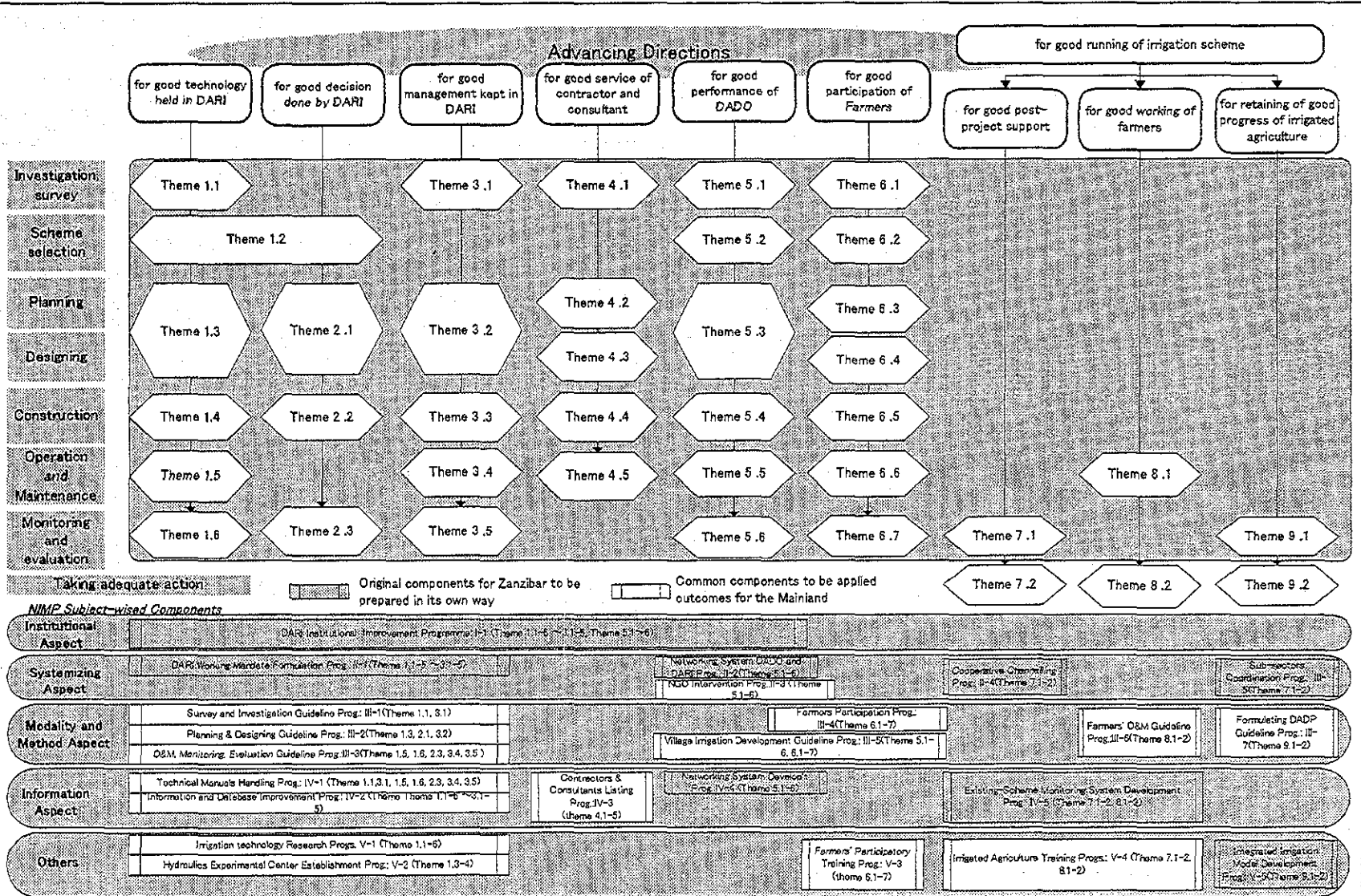
Scheme	Potential Area (ha)	Present Area (ha)	Scheme	Potential Area (ha)	Present Area (ha)	Scheme	Potential Area (ha)	Present Area (ha)
(1)	40	-	(14)	25	-	(27)	15	-
(2)	72	-	(15)	63	-	(28)	36	7
(3)	32	-	(16)	50	-	(29)	16	-
(4)	43	-	(17)	60	-	(30)	14	4
(5)	9	-	(18)	46	-	(31)	90	-
(6)	30	-	(19)	95	3	(32)	31	-
(7)	48	-	(20)	24	-	(33)	11	-
(8)	24	-	(21)	15	2	(34)	20	2
(9)	10	-	(22)	25	-	(35)	29	-
(10)	73	-	(23)	72	4	(36)	9	2
(11)	80	-	(24)	35	-	(37)	45	5
(12)	52	-	(25)	22	-	(38)	10	3
(13)	24	-	(26)	14	-	(39)	120	3

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

Japan International Cooperation Agency

Figure 4.4.2 Location of Potential Irrigation Schemes in Pemba Island

Figure 7.3.1
Procedures of Formulation of Subject-wise Programme in Zanzibar



Reference No.	Component Title	Implementation period	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Remarks	
Key Word in Stage-wise Development Programme			Short Term by 2007 Reform					Medium Term by 2012 Ownership					Long Term by 2020 Self-reliance										
I-1	IS Institutional Improvement Programme	2.0		30	15																		
II-1	IS Working Mandate Formulation Programme	1.0			30																		
II-2	Regulatory Networking System Establishment between LGAs and IS	1.0				45																	
II-3	NGOs' Intervention in Irrigation Development Encourage Programme	1.0																				To be utilized the outcome of the NIMP	
II-4	Cooperation Channeling within Irrigation-Sector Establishment Programme	1.0					45																
II-5	Sub-sectors Coordination System Establishment	1.0						30															
III-1	Survey and Investigation Guideline Establishment Programme	1.0																					To be utilized the outcome of the NIMP
III-2(1)	Planning Guideline Establishment Programme	1.0																					To be utilized the outcome of the NIMP
III-2(2)	Designing Guideline Establishment Programme	1.0																					To be utilized the outcome of the NIMP
III-3(1)	O&M Guideline Establishment Programme	1.0																					To be utilized the outcome of the NIMP
III-3(2)	Monitoring & Evaluation Guideline Establishment Programme	1.0																					To be utilized the outcome of the NIMP
III-4	Farmers' Participation in Irrigation Development Programme	1.0																					To be utilized the outcome of the NIMP
III-5	Village Irrigation Development Guideline Establishment Programme	1.0																					To be utilized the outcome of the NIMP
III-6	Farmers' O&M Manual Establishment Programme	1.0																					To be utilized the outcome of the NIMP
III-7	Establishment of DADP Formulation Guideline for Irrigated Agriculture Technical Manuals Handling Guideline	1.0																					To be utilized the outcome of the NIMP
IV-1	Establishment Programme Information and Database Improvement	0.5																					To be utilized the outcome of the NIMP
IV-2	Programme Irrigation Development Contacts and Consultant Listing Programme	1.5																					To be utilized the outcome of the NIMP
IV-3	LGA Networking System Establishment Programme	1.0											22										To be utilized the outcome of the NIMP
IV-4	Existing-scheme Monitoring System Establishment Programme	3.0						26	25	25													
V-1(1)	Irrigation Technology Research Center Establishment Programme	2.0																					To be utilized the outcome of the NIMP
V-1(2)	Perennial Irrigation Method Improvement Programme	1.5																					To be utilized the outcome of the NIMP
V-1(3)	Flood Irrigation Development Programme	2.0																					To be utilized the outcome of the NIMP
V-1(4)	Small Dam Technology for Irrigation Development Establishment Programme	2.0																					To be utilized the outcome of the NIMP
V-1(5)	Environmental Assessment Study for Irrigation Practice in Tanzania	2.0																					To be utilized the outcome of the NIMP
V-1(6)	Study of River-Basin Approach in Irrigation Development	1.0																					To be utilized the outcome of the NIMP
V-2	Hydraulic Experimental Center Establishment Programme	2.5																					To be utilized the outcome of the NIMP
V-3	Farmers' Participation Training Programme	1.0																					To be utilized the outcome of the NIMP
V-4(1)	Irrigated Agriculture Training Programme for Rice Production Increase	5.0																					To be utilized the outcome of the NIMP
V-4(2)	Irrigated Agriculture Training Programme for Cash Crops Production Increase	3.0																					To be utilized the outcome of the NIMP
V-5	Integrated Irrigation Development Model Establishment Programme	3.0							20	20	20												
Annual Cost (Thousand US\$)				30	45	45	45	55	68	45	20												

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

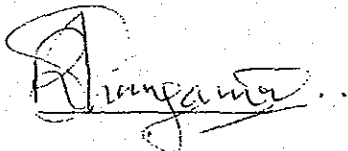
Japan International Cooperation Agency

Figure 7.3.2 Implementation Schedule of Subject-wise Improvement Programme

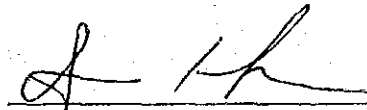
Attachment 1
Minutes of Meeting for the Study

MINUTES OF MEETINGS
FOR
THE STUDY
ON
THE ZANZIBAR IRRIGATION MASTER PLAN
IN
THE UNITED REPUBLIC OF TANZANIA
AGREED UPON BETWEEN
THE MINISTRY OF AGRICULTURE, NATURAL RESOURCES, ENVIRONMENT
AND COOPERATIVES, ZANZIBAR
THE UNITED REPUBLIC OF TANZANIA
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

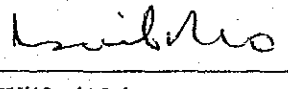
Dar es Salaam, 9th May, 2002



Ms. Rahma M. Mshangama
Principal Secretary
Ministry of Agriculture, Natural Resources,
Environment and Cooperatives,
Zanzibar



Mr. Sumio Aoki
Resident Representative
Tanzania Office,
Japan International Cooperation Agency

for 

Mr. Wilfred Ngirwa
Permanent Secretary
Ministry of Agriculture and Food Security,
Dar es Salaam

1. Introduction

Both the Ministry of Agriculture and Food Security of Main Land Tanzania (hereinafter referred to as "MAFS") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") agreed to the Scope of Works (hereinafter referred to as "S/W") for the Study on National Irrigation Master Plan (hereinafter referred to as "NIMP") which was signed on 10th April, 2001, at Dar es Salaam. In accordance with the S/W, the Study on NIMP for Main Land Tanzania commenced in October 2001, and is scheduled to be completed by March 2004.

In the course of the Study, the Ministry of Agriculture, Natural Resources, Environment and Cooperatives, Zanzibar (hereinafter referred to as "MANREC") requested JICA through MAFS to include Zanzibar in the Study Area of the NIMP.

In this regard, JICA finally with the consent of MAFS, agreed to include Zanzibar in the Study area of the NIMP provided that:

- MANREC shall complete the Inventory Survey for irrigation schemes and subjects by May 2002 using the questionnaire forms prepared by JICA.
- Government of Zanzibar (hereinafter referred to as "GOZ") shall undertake Items 7.1 and 7.2 mentioned in the S/W.

The scope of works for the Study for Zanzibar in the NIMP are stipulated below.


2. Objectives of the Study (Define "the Study" in this M/M)

Objectives of the Study for Zanzibar are as follows:

- (1) To formulate the Master Plan on Irrigation Development for Unguja and Pemba Islands with reference to the NIMP for the Main Land; and
- (2) To prepare the Implementation Plan for priority irrigation schemes selected in the Master Plan.

3. Study Area

- (1) The Master Plan for Zanzibar shall cover both Unguja and Pemba islands.
- (2) The Implementation Plan shall be prepared for one or two irrigation scheme(s) for both the Unguja and Pemba islands, which shall have been selected in the Master Plan.



4. Scope of the Study

4.1 Phase 1

4.1.1 Data Collection

- (1) To complete the Inventory Survey for irrigation schemes on the Unguja and Pemba islands executed by the GOZ.
- (2) To collect and review the existing information and/or data mainly on the following aspects:
 - (a) Natural, social and economic conditions,
 - (b) National, regional and district development policies/strategies/plans,
 - (c) Agricultural and social infrastructure,
 - (d) Water and land resources allocation,
 - (e) Operation and maintenance of existing agricultural facilities,
 - (f) Water management,
 - (g) Farming system,
 - (h) Agricultural extension and credit,
 - (i) Post harvesting and marketing,
 - (j) Environmental issues,
 - (k) Others.
- (3) To conduct field surveys for supplementary data as required.
- (4) To identify potential irrigation area through analysis of existing data and information collected.

4.1.2 Formulation of a Master Plan

- (1) To cover the following aspects in the Master Plan:
 - (a) Irrigation and drainage development,
 - (b) Institutional building,
 - (c) Water management,
 - (d) Monitoring and evaluation,
 - (e) Others.
- (2) To use the existing data and information for formulation of a Master Plan.
- (3) To set the target year of 2020 for the Master Plan.

- (4) To select the priority irrigation schemes by referencing the selection criteria prepared for the Main Land.
- (5) To refer to the priority irrigation subjects selected for the Main Land.

4.2 Phase 2

The Implementation Plan for the priority irrigation schemes will be studied in response to the recommendation and content of the Master Plan. As for the Implementation Plan for priority irrigation subjects, the plan for the Main Land will be referred for Zanzibar. In the course of presentation for the Implementation Plan, an Initial Environmental Examination (IEE) will be conducted in accordance with the relevant environmental law in Zanzibar.

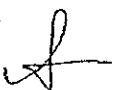
5. Study Schedule

The Study will be carried out in accordance with the Tentative Schedule attached as Annex.

6. Reports

JICA shall prepare and submit the following reports, written in English, to the GOZ;

- (a) Inception Report 1:
Twenty (20) copies at the commencement of the Study in Zanzibar.
- (b) Draft Master Plan Report:
Twenty (20) copies at the end of first work in Zanzibar.
- (c) Master Plan Report:
Thirty (30) copies at the start of second field work in Zanzibar.
- (d) Inception Report 2:
Twenty (20) copies at the start of second field work in Zanzibar.
- (e) Progress Report:
Twenty (20) copies in the process of second field work in Zanzibar.
- (f) Draft Implementation Plan Report:
Twenty (20) copies at the end of second work in Zanzibar
- (g) Implementation Plan Report:
Thirty (30) copies about 2 month after the submission of Implementation Plan Report



7. Counterpart Agency

MANREC will act as a counterpart agency to the JICA Study Team and also as a coordinating and guiding body in relation with other governmental and non-governmental organizations and donors concerned for the smooth implementation of the Study.

8. Counterpart Personnel

MANREC shall assign the necessary number of counterpart personnel to the JICA Study Team during the field work period.

9. Steering Committee

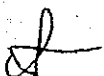
MANREC shall organize a steering committee consisting of representatives from the relevant agencies for the smooth and effective implementation of the Study.

10. Stakeholder Meeting

MANREC shall hold Stakeholder Meeting(s) for recognizing the process and outputs of the Study among related actors.

11. Consultation

JICA, MAFS and MANREC shall maintain constant communication and consult with each other in respect to any matters that may arise from or in connection with the Study.



R.M

TENTATIVE SCHEDULE for ZANZIBAR

MONTH *	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
WORK IN TANZANIA								▨								▨																	
WORK IN JAPAN												□																					
REPORT								△ ①				△ ②																					
PHASE								← PHASE1 →																									

* indicates the period from the commencement of the study for Main Land

- ① Inception Report 1
- ② Draft Master Plan Report
- ③ Master Plan Report
- ④ Inception Report for Phase 2
- ⑤ Progress Report for Phase 2
- ⑥ Draft Implementation Plan Report
- ⑦ Implementation Plan Report

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9-6

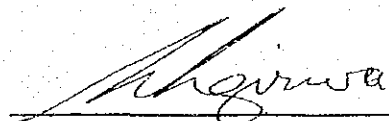
R.M.

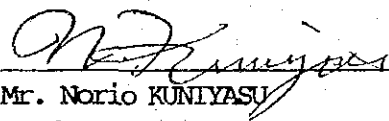
Attachment 2

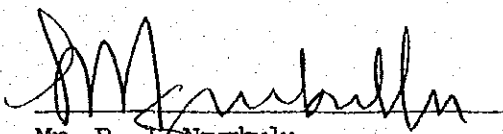
***Minutes of Meeting for Scope of Work
for the Study and Minutes of Meeting on Scope of Work***

SCOPE OF WORK
FOR
THE STUDY
ON
THE NATIONAL IRRIGATION MASTER PLAN
IN
THE UNITED REPUBLIC OF TANZANIA
AGREED UPON BETWEEN
THE MINISTRY OF AGRICULTURE AND FOOD SECURITY
THE UNITED REPUBLIC OF TANZANIA
AND
THE JAPAN INTERNATIONAL COOPERATION AGENCY

Dar Es Salaam, 10, April, 2001


Mr. Wilfred Ngirwa
Permanent Secretary
Ministry of Agriculture and Food Security
The United Republic of Tanzania


Mr. Norio KUNIYASU
Leader
The Preparatory Study Team
Japan International Cooperation Agency


Mr. P. J. Ngumbulu
Permanent Secretary
Ministry of Finance
The United Republic of Tanzania

I. INTRODUCTION

In response to the request of the Government of The United Republic of Tanzania (hereinafter referred to as "GOT"), the Government of Japan has decided to conduct the Study on National Irrigation Master Plan (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of GOT.

The present document sets forth the scope of work with regard to the Study.

II. OBJECTIVES OF THE STUDY

The objectives of the Study are as follows:

- 2.1 To formulate the Master Plan in line with the prevailing policy, strategy and program of GOT, in particular, Agricultural Sector Development Strategy and Agricultural Sector Program;
- 2.2 To formulate the Implementation Plan in accordance with the priority which will be set in the Master Plan;
- 2.3 To conduct the Verification Study, aiming at capacity building for irrigation development; and
- 2.4 To carry out technology transfer to Tanzanian counterpart personnel through on-the-job training in the course of the Study.

III. STUDY AREA

- 3.1 The Master Plan Study will be carried out at national level for the whole country.
- 3.2 The Implementation Plan and the Verification Study will be examined in the area(s) prioritized in the Master Plan.

IV. SCOPE OF THE STUDY

In order to achieve the objectives above, the study shall consist of the following activities.

4.1 Phase 1

4.1.1 Data collection

- (a) To collect and review the existing information and/or data mainly on the following aspects;
- (i) Natural, social and economic conditions.
 - (ii) National, regional and district development policy/strategy/plan.
 - (iii) Agricultural and social infrastructure.
 - (iv) Water and land resources allocation.
 - (v) Operation and maintenance of existing agricultural facilities.
 - (vi) Water management.
 - (vii) Farming system.
 - (viii) Agricultural extension and credit.
 - (ix) Post harvesting and marketing.
 - (x) Environmental issues.
 - (xi) Others.
- (b) To conduct field surveys for supplementary data collection.

4.1.2 Formulation of the Master Plan

- (a) The Master Plan will mainly cover the following aspects;
- (i) Irrigation and drainage development.
 - (ii) Institutional building.
 - (iii) Water management.
 - (iv) Monitoring and evaluation.
 - (v) Others.
- (b) To select the priority area(s) in accordance with the social, economic, physical and environmental conditions.

4.2 Phase 2

4.2.1 Formulation of the Implementation Plan.

The Implementation Plan in the priority area(s) will be studied in response to the recommendation and content of the Master Plan.

4.3 Phase 3

4.3.1 Implementation of Verification Study.

To carry out the Verification Study among the Implementation Plan(s) for aiming at capacity building of stakeholders in irrigation development. The detail content of the Verification Study will be examined in Phase 2.

V. STUDY SCHEDULE

The Study will be carried out in accordance with the Tentative Schedule attached as Annex.

VI. REPORTS

JICA shall prepare and submit the following reports, written in English, to the GOT;

- (i) Inception Report for Phase 1:
Thirty (30) copies at the commencement of the Study.
- (ii) Progress Report for Phase 1:
Thirty (30) copies in the process of first work in Tanzania.
- (iii) Draft Master Plan Report:
Thirty (30) copies at the end of first work in Tanzania.
- (iv) Master Plan Report:
Fifty (50) copies at the beginning of second work in Tanzania.
- (v) Inception Report for Phase 2:
Thirty (30) copies at the beginning of second work in Tanzania.
- (vi) Progress Report for Phase 2:
Thirty (30) copies in the process of second work in Tanzania.
- (vii) Draft Implementation Plan Report:
Thirty (30) copies at the end of second work in Tanzania.
- (viii) Implementation Plan Report:
Fifty (50) copies at the beginning of third work in Tanzania.
- (ix) Inception Report for Phase 3:
Thirty (30) copies at the beginning of third work in Tanzania.
- (x) Progress Report for Phase 3:
Thirty (30) copies in the process of third work in Tanzania.
- (xi) Draft Verification Study Report:
Thirty (30) copies at the end of third work in Tanzania.
- (xii) Verification Study Report:
Fifty (50) copies at the fourth work in Tanzania.

Tanzanian side shall submit the comments on each Report at the

meetings/workshops to be held in the process of work in Tanzania.

VII. UNDERTAKING OF THE GOT

7.1 To facilitate the smooth conduct of the Study, GOT shall take necessary measures:

- (i) To secure the safety of the Study Team:
- (ii) To permit the members of the Study Team to enter, leave and sojourn in Tanzania for the duration of their assignment therein, and exempt them from alien registration requirements and consular fees:
- (iii) To exempt the members of the Study Team from taxes, duties and other charges on equipment, machinery and other materials to be brought into and out of Tanzania for the conduct of the Study in accordance with the laws and regulations existing in Tanzania.
- (iv) To exempt the members of the Study Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Study Team for their services in connection with the implementation of the Study;
- (v) To provide necessary facilities to the Study Team for remittance as well as utilization of the funds introduced into Tanzania from Japan in connection with the implementation of the Study;
- (vi) To secure permission for the Study Team to enter private properties or restricted areas for the implementation of the Study;
- (vii) To secure permission for the Study Team to take all data and documents, including photographs and maps, relevant to the Study out of Tanzania to Japan for the purpose of the Study, and
- (viii) To provide medical services as needed. Its expenses will be chargeable to members of the Study Team.

7.2 The GOT shall bear claims, if any arises, against members of the Study Team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Study Team.

7.3 The Ministry of Agriculture and Food Security (hereinafter referred to as MAFS) shall act as a counterpart agency to the Study Team and

also as a coordinating and guiding body in relation with other governmental organizations and non-governmental organizations concerned for smooth implementation of the Study.

7.4 MAFS shall, at its own expense and in cooperation with other organizations concerned, provide the Study Team with the following;

- (i) Available data and information related to the Study,
- (ii) Counterpart personnel,
- (iii) Suitable office space with necessary equipment in Dar Es Salaam, and
- (iv) Credentials or identification cards.

VIII. UNDERTAKING OF JICA

For the implementation of the study, JICA shall take the following measures;

- (i) To dispatch, at its own expense, study teams to Tanzania, and,
- (ii) To pursue technology transfer to the Tanzanian counterpart personnel in the course of the Study.

IX. CONSULTATION

JICA and MAFS shall maintain constant communication and consult with each other in respect of any matters that may arise from or in connection with the Study.




TENTATIVE SCHEDULE

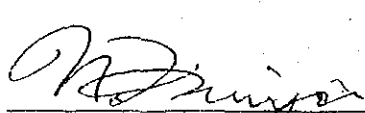
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WORK IN TANZANIA	[Hatched pattern]							[Hatched pattern]							[Hatched pattern]							[Hatched pattern]								
WORK IN JAPAN	[]	[]										[]							[]											
REPORT	△ ①							△ ②	△ ③	△ ④and⑤								△ ⑥	△ ⑦	△ ⑧and⑨								△ ⑩	△ ⑪	△ ⑫
PHASE	← PHASE1											← PHASE2											← PHASE3 →							

- ① Inception Report for Phase 1
- ② Progress Report for Phase 1
- ③ Draft Master Plan Report
- ④ Master Plan Report
- ⑤ Inception Report for Phase 2
- ⑥ Progress Report for Phase 2
- ⑦ Draft Implementation Plan Report
- ⑧ Implementation Plan Report
- ⑨ Inception Report for Phase 3
- ⑩ Progress Report for Phase 3
- ⑪ Draft Verification Study Report
- ⑫ Verification Study Report

MINUTES OF MEETINGS
FOR
THE STUDY
ON
THE NATIONAL IRRIGATION MASTER PLAN
IN
THE UNITED REPUBLIC OF TANZANIA
AGREED UPON BETWEEN
THE MINISTRY OF AGRICULTURE AND FOOD SECURITY
THE UNITED REPUBLIC OF TANZANIA
AND
THE JAPAN INTERNATIONAL COOPERATION AGENCY

Dar Es Salaam, 10, April, 2001


Mr. Wilfred Ngirwa
Permanent Secretary
Ministry of Agriculture and Food Security
The United Republic of Tanzania


Mr. Norio KUNIYASU
Leader
The Preparatory Study Team
Japan International Cooperation Agency

In response to the request of the Government of The United Republic of Tanzania (hereinafter referred to as "GOT"), the Preparatory Study Team (hereinafter referred to as "the Team") headed by Mr. KUNIYASU Norio was sent to The United Republic of Tanzania by the Japan International Cooperation Agency from 18th March, to 11th April, 2001.

The Team held a series of discussions in relation to the Scope of the Study on National Irrigation Master Plan (hereinafter referred to as "the Study") with representatives of the Ministry of Agriculture and Food Security of GOT (hereinafter referred to as "MAFS") and other relevant organizations. The list of participants in the series of meetings is attached as ANNEX 1. The following were agreed upon by both Tanzanian and Japanese sides in relation to the Study.

1. Title of the Study

Both sides agreed that the title of the study should be changed from "The Master Plan Study on National Irrigation Development Promotion" to "The Study on National Irrigation Master Plan".

2. Undertakings

Refer to the undertakings of the GOT written in the Scope of Works, MAFS expressed difficulties in providing vehicle(s), a photocopy machine, a personal computer, an air conditioner, a facsimile and an electric generator by its own expense to the Study Team and requested JICA to make the arrangements of such equipment. The Team promised to convey the requests to the Government of Japan.

JICA requested MAFS to make necessary arrangement in providing temporary office space(s) in Dar Es Salaam preferably within the proximity of the Irrigation Section office and in the respective zonal irrigation unit office in the prioritized area(s) which will be decided in the course of the Study. MAFS promised to undertake this responsibility.

3. Counterpart Agency

Both sides confirmed that MAFS acts as a counterpart agency to the Study Team and also as a coordinating and guiding body in relation with other governmental and non-governmental organizations and donors concerned for the smooth implementation of the Study. Both sides also confirmed that

the Study will be implemented under the cooperative manner between both sides, with respect of the ownership of GOT.

4. Target Year

MAFS requested that the duration of the Master Plan should be set forth 15 years, taking into consideration of the existing irrigation master plan (National Irrigation Development Plan) target year as 2014.

5. Steering Committee

For the smooth and effective implementation of the Study, both sides agreed upon the need for establishment of a steering committee consisting of representatives from the following ministries and organizations before the commencement of the Study.

- (1) Ministry of Agriculture and Food Security
- (2) President's Office, Planning and Privatization Commission
- (3) President's Office, Regional Administration and Local Government
- (4) Vice President's Office, Environment Department
- (5) Prime Minister's Office
- (6) Ministry of Finance
- (7) Ministry of Water and Livestock Development
- (8) Ministry of Natural Resources and Tourism
- (9) Ministry of Energy and Minerals
- (10) Ministry of Lands and Human Settlement Development
- (11) JICA Tanzania Office
- (12) Embassy of Japan (as an observer)
- (13) Any other co-opted members

6. Counterpart Personnel

MAFS promised to assign the necessary number of counterpart personnel for the Study Team from the organizations concerned. The member list of counterpart personnel is attached as ANNEX 2.

MAFS expressed difficulties in providing travel allowance for them and requested JICA to make necessary arrangements, because of the budget limitation.

7. Counterpart Training in Japan


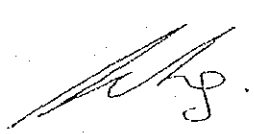
MAFS requested the training of counterpart personnel on specific relevant subjects in Japan for the efficient implementation of the Study. The Team promised to convey it to the Government of Japan.

8. Workshop/Stakeholder Meeting

Both sides agreed to hold the workshops and/or stakeholder meetings for recognizing the process and outputs of the Study among related actors.

9. Data Base

The Tanzanian side requests to establish an irrigation data base. The Japanese side promised to examine the matter in the course of the Study in consultation with the Tanzanian side.




(A) LIST OF MAFS STAFF MET BY THE JICA PREPARATORY STUDY TEAM

1. Mr. W. NGIRWA	Permanent Secretary
2. Dr. N. P. SICILIMA	Director of Crop Development
3. Mrs. J. BITEGEKO	Director of Policy and Planning
4. Eng. G. M. KALINGA	Assistant Director for Irrigation
5. Eng. A. H. SIMBA	Irrigation Engineer
6. Eng. D. B. E. URASSA	Civil Engineer
7. Mr. P. MAFURU	Agricultural Economist, Head of Monitoring and Evaluation Unit
8. Mr. A. L. SIMUKANGA	Environmental Engineer
9. Eng. F. MBOGO	Irrigation Engineer
10. Eng. I. MASENZA	Water Resources Engineer
11. Mrs. E. NNYITI	Soil Scientist, Zonal Irrigation Unit, Morogoro
12. Eng. C. K. CHIZA	National Project Coordinator, Rehabilitation of Traditional Irrigation Project
13. Eng. A. E. R. ISSAE	Civil Engineer
14. Dr. J. NOZAKA	Irrigation Advisor(JICA expert)

(B) LIST OF PARTICIPANTS FOR STAKEHOLDERS MEETING ON THE NATIONAL IRRIGATION MASTER PLAN STUDY

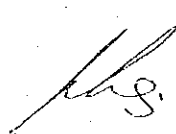
1. Mr. W. NGIRWA	Permanent Secretary, MAFS
2. Dr. N. P. SICILIMA	Director of Crop Development, MAFS
3. Eng. R. J. MTEMU	Head of Technical Advisory Unit, ASPS
4. Mr. P. J. ZOUTEWELLE	Irrigation Advisor, ASPS, DANIDA
5. Dr. S. LUGEYE	Agricultural Advisor, Ireland Aid
6. Mr. E. OCLEIRIGH	Programme Officer, Ireland Aid
7. Mr. J. SALMON	Rural Livelihoods Advisor, DFID
8. Mr. G. S. NGAREYA	Assistant Director, Prime Minister's Office
9. Dr. I. K. ALOO	Senior Forest Officer, Ministry of Natural Resources & Tourism
10. Ms. M. TAKADA	Programme Officer, WFP
11. Mr. J.K. KABYMER	Programme Officer, FAO
12. Mr. H. V. PEDERSEN	Chief Technical Advisor, ASPS, DANIDA
13. Eng. G. M. KALINGA	Assistant Director for Irrigation, MAFS
14. Eng. A. H. SIMBA	Irrigation Engineer, MAFS
15. Dr. J. NOZAKA	Irrigation Advisor, MAFS
16. Mr. N. ITO	Second Secretary, Embassy of Japan
17. Mr. I. RUGEMALILE	Economist, Embassy of Japan
18. Mr. Y. SASAOKA	Special Advisor, JICA

19. Mr. R. SASAKI Advisor, JICA
20. Mr. Y. AIZAWA Advisor, JICA
21. Mr. S. OKUBO Advisor, JICA

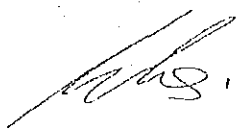
(C) List of the Preparatory Study Team, JICA

1. Mr. KUNIYASU Norio Leader, Irrigation Policy
2. Mr. MITSUGI Hiroto Member, Donor Coordination
3. Dr. YOSHIDA Koji Member, Farming
4. Mr. JITSUHIRO Noboru Member, Water Resources
5. Mr. FURUDONO Seigo Member, Irrigation/Agricultural Infrastructure
6. Mr. AZEGAMI Naoya Member, Agricultural Organization/Management
7. Mr. HAYASHI Kenji Member, Project Planning



LIST OF PROPOSED COUNTERPART PERSONNEL

1. Eng. A. H. SIMBA Irrigation/Civil Engineer (Irrigation HQ)
2. Mr. P. F. MAFURU Agricultural Economist (Irrigation HQ)
3. Mr. H. MEDADI Irrigation Agronomist (Irrigation HQ)
4. Mrs. E. NNYITI Soil Scientist (Morogoro Zonal Irrigation Unit)
5. Mr. I. MASENZA Water Resources Engineer/Hydrologist (Irrigation HQ)
6. Mr. R. KOMANGA Sociologist (Morogoro Zonal Irrigation Unit)




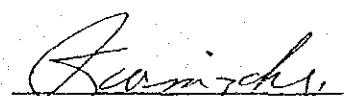
Attachment 3
Minutes of Meeting on Inception Report 1

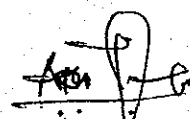
MINUTES OF MEETING
ON
INCEPTION REPORT 1 (ZANZIBAR)
FOR
THE STUDY
ON
THE NATIONAL IRRIGATION MASTER PLAN
IN
THE REPUBLIC OF TANZANIA

The Study Team submitted twenty (20) copies of the Inception Report 1 of the 1st field work of the Study on the National Irrigation Master Plan for Zanzibar (hereinafter referred to as "the Study") to the Ministry of Agriculture, Natural Resources, Environment and Cooperatives (hereinafter referred to as "MANREC"), in accordance with the Minutes of Meeting for the Study signed between MANREC and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on May 9, 2002.

The meeting on the Report was held with the Steering Committee on May 15, 2002, although prior discussions on it were made between counterpart personnel of MANREC and the Study Team on May 14, 2002. In the meetings, the Study Team explained the contents of the Report and further highlighted the outline, basic concept and basic approach of the Study. This was followed by discussions on the contents of the Report among the Participants. As a result of the discussions, the contents of the Report were accepted by the Steering Committee. The main issues discussed among Participants and the list of Participants are shown in ANNEXES attached hereto.


Mr. Ali Khamis Makarani
Deputy Principal Secretary
Ministry of Agriculture Natural Resources,
Environment and Cooperatives,
Zanzibar
Date: May 16, 2002


Mr. Hitoshi Shimazaki
Leader
The Study Team
Date: May 16, 2002


Eng. A.H. Simba
Chief Counterpart Personnel
Ministry of Agriculture and Food Security,
Main Land
Date: May 16, 2002

Main Issues Confirmed and Agreed at the Meetings

1. Technical Issues

- (1) MANREC shall submit to the Study Team all the results of inventory survey for the irrigation schemes to be rehabilitated and to be proposed by June 15, 2002.
- (2) MANREC shall submit to the Study Team all the relevant data and reports by June 15, 2002. In this connection, the Study Team shall provide the list of required data and reports to counterpart personnel on May 15, 2002.
- (3) Problems envisaged with farmers which will be found through inventory survey, shall be reflected upon the Study.
- (4) Environmental study like the IEE shall be conducted in the Study in accordance with the relevant government regulations.
- (5) The Study Team shall execute technology transfer for the counterpart personnel assigned in the course of the Study.

2. Operational Issues

- (1) Assignment schedule (Figure 3) attached to the Inception Report
It was confirmed that assignment schedule (Figure 3) attached to the Inception Report presented the experts assignment for the master plan study for both Main Land and Zanzibar.
- (2) Steering Committee
It was confirmed that a Steering Committee should function as a final decision making board for the Study.
- (3) Attendance of Chief Counterpart Personnel, MAFS
It was agreed that the Chief Counterpart Personnel of MAFS, Main Land would attend at the Steering Committee Meeting as an observer.
- (4) Operational Fund for Counterpart Personnel
MANREC explained that operational fund required for counterpart personnel were under request to the Ministry of Finance.
- (5) Attendance at Stakeholder Meeting
The Study Team will explain the progress of Zanzibar Irrigation Master Plan in the Stakeholder Meeting to be held at Dar es Salaam, therefore MANREC was requested to attend at the Meeting for donor coordination.



List of Participants

1. Tanzanian Side

- (1) Ministry of Agriculture and Food Security, Main Land
- (a) Mr. A.H. Simba Chief Counterpart Personnel
Senior Irrigation Engineer
 - (b) Dr. Jiro Nozaka Irrigation Advisor
- (2) Steering Committee, Zanzibar
- (2.1) Committee Members*
- (a) Mr. Ali Khamis Makarani Deputy Principal Secretary, MANREC
 - (b) Mr. Kassim M. Biwi Deputy Commissioner, Commission of Agric, Research, Extension
 - (c) Mr. Mberik Rashid Said Director, Department of Environment
 - (d) Mr. Hemed Salim Director, Department of Water
 - (e) Mr. Juma M. Mbarouk Planning Officer, Ministry of Local Government
 - (f) Ms. Fatma G. Bilal Senior Planning Officer, Ministry of Finance & Economic Affairs
 - (g) Mr. Adam Kh. Haji For Director of Planning - MANREC
 - (h) Mr. Shaaban Abdulmalik Chief Counterpart Personnel, Commission of Agric, Research, Extension
- (2.2) Invited Members*
- (a) Mr. Ali Haji Ramadhan Planning Officer, MANREC
 - (b) Mr. Shaame M. Shaame Irrigation engineer, Commission of Agric, Research, Extension
 - (c) Mr. Andrea S. Mbinga Irrigation/Rural Infrastructure engineer, Commission of Agric, Research, Extension
 - (d) Mr. Mahmoud V. Pandu Land Resource engineer, Commission of Agric, Research, Extension
 - (e) Mr. Ali M. Omar Agronomist, Commission of Agric, Research, Extension
 - (f) Mr. Mchenga A. Mchenga Irrigation engineer, Commission of Agric, Research, Extension
 - (g) Mr. Juma Ali Juma Head of Kizimbani Research Station

2. Japanese Side

- (a) Mr. Hitoshi Shimazaki Leader of JICA Study Team
- (b) Dr. Shuichi Matsushima Staff of JICA Study Team
- (c) Mr. Takeshi Kuroda Staff of JICA Study Team



Attachment 4

Minutes of Meeting on Draft Master Plan Report

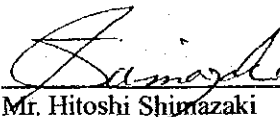
MINUTES OF MEETING
ON
Draft Master Plan Report
FOR
THE STUDY
ON
THE ZANZIBAR IRRIGATION MASTER PLAN
IN
THE REPUBLIC OF TANZANIA

The Study Team submitted twenty (20) copies of the Draft Master Plan Report of the Study on the Zanzibar Irrigation Master Plan (hereinafter referred to as "the Report") to the Ministry of Agriculture, Natural Resources, Environment and Cooperatives (hereinafter referred to as "MANREC"), in accordance with the Minutes of Meeting for the Study signed between MANREC and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on May 9, 2002.

The meeting on the Report was held with the Steering Committee on August 26, 2002. In the meeting, the Study Team explained the contents of the Report and further highlighted the framework for irrigation development plan, development scenario and development programme for the year 2020 including basic plans of institutional development and agricultural development. This was followed by discussions on the contents of the Report among the Participants. As the results of the discussions, the contents of the Report were accepted by the Steering Committee. The main issues discussed among Participants and the list of Participants are shown in ANNEXES attached hereto.



Dr. Mwatima A. Juma
Commissioner for Agriculture
Research and Extension
Ministry of Agriculture, Natural Resources,
Environment and Cooperatives,
Zanzibar
Date: August 27, 2002



Mr. Hitoshi Shimazaki
Leader
The Study Team
Date: August 27, 2002



Eng. A.H. Simba
Chief Counterpart Personnel
Ministry of Agriculture and Food Security,
Main Land
Date: August 27, 2002

Main Issues Confirmed and Agreed at the Meetings

1. Technical Issues

- (1) Draft Water Policy, Land Policy and Environmental Policy should be briefly mentioned in the Report. In this regard, the MANREC will submit the relevant reports to the Study Team on August 27, 2002.
- (2) Groundwater schemes should be carefully planned and designed through inter-ministerial coordination, in order to avoid any water conflict among relevant ministries, and considering the recharge mechanism of groundwater which is supplied only from rainfall water.
- (3) Poverty status should be mentioned from the viewpoints of income poverty and non-income poverty if relevant data is available.
- (4) The MANREC requested that Chapter 8 should be excluded from the Final Master Plan Report due to its inconsistency with the Report, and be included in the coming Implementation Plan Report.
- (5) The MANREC requested to consider the execution of PCM Workshops for strengthening of Irrigation Section, Local Governments, and WUAs, in connection with preparation of the Implementation Plan Report:
- (6) The MANREC requested the Study Team to provide the data of inventory survey results in a form of computer file for the coming updating of the ZIMP.
- (7) The MANREC will submit to the Study Team further comments on the Report if any, by the end of September 2002.

2. Operational Issues

- (1) The MANREC requested to consider the following issues, in connection with the execution of field works for the Implementation Plan and also the coming smooth implementation of the ZIMP:
 - (a) Provision of the following office facilities
 - Desk-top Computer (2 sets)
 - Scanners A3 size (2sets)
 - Printers (2 sets)
 - Fax Machine (1 set)
 - Photo Copy Machine (1 set)
 - (b) 4WD Vehicle (long chassis : 1 no.)
- (2) The MANREC requested to consider the overseas or in-country training of counterpart personnel.



- (3) MANREC requested that the counterpart personnel should take part in presentation of the Implementation Plan Report in cooperation with the Study Team, as one of technology transfers.

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List of Participants

1. Tanzanian Side

(1) Steering Committee, Zanzibar

Committee Members

- | | |
|----------------------------|--|
| (a) Mr. Khalid S. Mohd | Director of Planning, MANREC |
| (b) Dr. Mwatima A. Juma | Commissioner, for Agriculture, Research, and Extension |
| (c) Mr. Alawi H. Hija | For Director, Department of Environment |
| (d) Mr. Hemed Salim | Director, Department of Water |
| (e) Mr. Abdulrahman Mnoga | Local Governments Officer, Ministry of Local Government |
| (f) Mr. Abdalla S. Abdalla | Commissioner for Sectoral Policy and Project Development, Ministry of Finance & Economic Affairs |
| (g) Mr. Shaaban Abdulmalik | Chief Counterpart Personnel, Commission of Agriculture, Research, Extension |
| (h) Dr. Bakari S. Asseid | Director, Department of cash crops, Fruits and Forestry. |
| (i) Mr. Ismail S. Mgeni | Officer In charge MANREC Pemba. |

Invited Members

- | | |
|----------------------------|--|
| (a) Mr. Ali Haji Ramadhan | Planning Officer, MANREC |
| (b) Mr. Shaib J. Khalfan | Irrigation Engineer, Commission of Agriculture, Research, Extension Pemba. |
| (c) Mr. Andrea S. Mbinga | Irrigation/Rural Infrastructure Engineer, Commission of Agriculture, Research, Extension |
| (d) Mr. Mahmoud V. Pandu | Land Resource Engineer, Commission of Agriculture, Research, Extension |
| (e) Mr. Abdallah Kh. Hamad | Irrigation Engineer Commission for Agriculture, Research Extension, Pemba. |
| (f) Mr. Mchenga A. Mchenga | Irrigation Engineer, Commission of Agriculture, Research, Extension |
| (g) Mr. Juma Ali Juma | Counterpart on Organization and Institution |
| (h) Ms. Aisha Alawy | Counterpart on Macro-economy and Donor Coordination |

(2) Ministry of Agriculture and Food Security, Main Land

- | | |
|--------------------|---|
| (a) Mr. A.H. Simba | Chief Counterpart Personnel
Senior Irrigation Engineer |
|--------------------|---|







2. Japanese Side

JICA Tanzania Office

(a) Ms. Kaori Matsushita

Assistant Resident Representative

JICA Study Team

(a) Mr. Hitoshi Shimazaki

Leader of JICA Study Team

(b) Dr. Shuichi Matsushima

Staff

(c) Dr. Mamoru Osada

Staff

(d) Mr. Hiroyasu Onuma

Staff

(e) Mr. Takuya Igawa

Staff

(f) Mr. Takeshi Kuroda

Staff

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