administrative system and alternative solutions discussed with farmers. To achieve this, a farmer centred farming system approach is needed in the extension system.

4.1.5 Credit

Agricultural credit is a key development factor in converting subsistent agriculture to commercial agriculture. However, credit to the agricultural sector is poorly provided. The credit allocated to this sector is only 8.5% of the total lending, and the majority of this share is provided to the public sector and to marketing and processing activities. The agricultural credit is, therefore, insufficiently available to small holdings.

The mere distribution of loans by banks will not give anticipated results unless farmers are properly guided for effective use of credit. Therefore, an integrated and well coordinated extension program should be carried out. One of recommendable systems to be introduced in Southern Area is a group loan system. The Southern Development Authority would support the implementation of this type of credit scheme negotiating with relevant bank authorities. Strengthening FOs ability to handle credit will become essential. In this regard, more training both to farmers and officers related to agricultural credit should be provided.

4.1.6 Farmers' organizations

The institution of formal FOs is foreseen to effect the government policy of devolving greater management responsibilities to farmers and thereby promoting self reliance within communities. At present, however, most FOs are weak to undertake these responsibilities. Several special programs for strengthening FOs have been carried out in the past, and some are on-going. Farmers should be well organized for O&M of their irrigation command, receiving agricultural credit and handling marketing activities both for farm inputs and outputs.

4.2 Projects

A total of 14 projects/programs have been formulated within the frame of the agriculture sector strategy. Among these, anchor projects selected are (i) Paddy-based Mixed Farming Promotion, (ii) Small Holder Integrated Farming Promotion, and (iii) Home Gardens Based Multi-storey Farming Promotion.

These projects aim at innovation of indigenous agriculture in the three important production systems in Southern Area, i.e. irrigated paddy, rainfed agriculture and home gardens. Through implementation of the projects, these production systems would established as into ones having higher productivity.

(1) Paddy-based Mixed Farming Promotion

Irrigated paddy is one of the most important production systems occupying about 10% of the total agricultural land in Southern Area. In spite of its importance, however, paddy yields are generally low due mainly to the neglect by most farmers in the wet zone and to the insufficient irrigation in the dry zone. Farmer incomes from paddy production are therefore small comparing to those from other high value crops.

Overall income should be increased through introduction of OFCs to paddy lands during the dry season. Under this project, farmers would be encouraged for crop diversification aiming at increase of crop production both for OFCs (including some short-term OFCs such as greengram and soybean) and paddy. The project would provide intensive supporting services such as extension, farm inputs supply, and credit for production investments. Related facilities such as storage for farm inputs and outputs would also be provided under the project. The project would be implemented under the existing institutional arrangements. DOA would be the executing agency coordinating with ID and Provincial Councils in the respective provinces.

(2) Small Holder Integrated Farming Promotion

This is a program to improve the present low productive rainfed agriculture in the dry zone. After a feasibility study, about 10 pilot schemes would be developed and operated through farmer participation. Major components of the pilot scheme development would be (i) establishment of supporting system for rainfed agriculture development, (ii) establishment of FOs for management of rainfed agriculture in a sustainable manner, (iii) improvement of domestic water supply, (iv) grazing land development by renovating abandoned tanks, and (v) consultancy services for technical assistance.

In the pilot schemes, improved technologies on crop combination with livestock raising would be demonstrated, and readily available new crop varieties and technologies (such as bio-gas and organic fertilizer making) would be tested in cooperation with research institutes located in Southern Area. Extension and farmer training would be intensively provided to

farmers and FOs for promotion of integrated farming. After the pilot scheme operation for five-year period, the production systems would be expanded to other locations of potential areas which would be identified in the above mentioned feasibility study. The executing agency for the feasibility study would be SDA, and the Provincial Council in each dry zone province would be responsible for pilot scheme development and operation in close coordination with DAPH, DOA, DEA, Land Commissioner and the Faculty of Agriculture in the Ruhuna University.

(3) Home Gardens Based Multi-storey Farming Promotion.

This project aims at rehabilitation of home gardens as another important production system which occupy 15% of the total agricultural land in Southern Area. With the project, present low productivity in home gardens would be converted into more effective multi-storey farming. Crops and crop combinations would be selected strategically based on area specific conditions. Promising combinations would include fruit trees such as mango and citrus, and aromatic plants such as vanilla and cardamom. Some herbal medicine plants and mushrooms would also have a potential for combination.

Processing of some crops would also be carried out by farmers themselves in their home industries which would be established with technical and financial assistance under the project. Promising products would include dried fruits, candied fruits, home made-type fruits wine, packed spices, dried mushrooms, etc. A study would be carried out to identify more promising crops and their combinations and sites for pilot implementation. The project would provide (i) extension and information services, (ii) seeds and seedlings, (iii) farmers organizing and training, (iv) credit for home industry establishment and farm inputs, and (v) related infrastructure to support input procurement and marketing. The Provincial Council in each province would be the executing agency of the project. Close coordination and cooperation with DOA, DEA and the Cashew Corporation would be needed for the implementation.

(4) Local projects/programs

In addition to the anchor projects, the following eleven local projects/programs are proposed for implementation for the agriculture sector development in Southern Area.

Crop agriculture

1) Seed-paddy Production and Supply System Improvement,
2) Tea Small Holdings Sector Improvement, and
3) Sugar Plantation Development Project (Private Sector).

Livestock

4) Strengthening of Cattle and Buffalo Breeding Program, and
5) Beef Processing and Marketing Development in the Dry Zone (Private Sector).

Irrigation

6) Irrigation System Rehabilitation and New Development,
7) Abandoned Tanks Renovation Project in Moneragala and Ampara Districts,
8) Private Sector's Irrigated Agriculture Development (Private Sector), and
9) Irrigation Pilot Project with Improved Water Delivery Techniques.

Institution

10) Enhancement of Teaching and Research Facilities in Faculty of Agriculture, University of Ruhuna.

Other

11) Groundwater Development in SEDZ

Profile of these projects/programs are contained in a separate volume.

Table I.1 Value of Agricultural, Fishery and Forestry Trade

	1988 (US$'000)	1989 (US$'000)	1990 (US$'000)	1991 (US$'000)	1992 (US$'000)	1993 (US$'000)	Average (1991-93)	% distribution (91-93 Ave.)	1988-93 Increase (1988=100)
(1) Import									
TOTAL MERCHANDISE TRADE	2,179,933	2,109,877	2,693,227	3,039,427	3,531,760	4,064,548	3,545,245		186
AGRIC. + FISHERY + FOREST. TOTAL	544,295	608,184	612,048	647,229	687,944	565,889	633,687	100.0	104
AGRIC. PRODUCTS. TOTAL	426,820	525,137	493,691	524,176	587,693	478,334	530,068	83.6	112
FOOD AND ANIMALS	376,623	478,075	440,132	450,522	493,684	390,673	444,960	70.2	104
Live Animals	563	609	1,006	933	962	689	861	0.1	122
Meat + Meat Prep	1,052	969	1,223	1,923	2,002	996	1,640	0.3	95
Dairy Prod. + Eggs	59,140	64,076	58,041	65,844	66,379	48,981	60,401	9.5	83
Cereals and Prep.	158,463	239,222	175,256	144,781	197,239	188,330	176,783	27.9	119
Fruit + Vegetables	24,093	13,771	37,507	62,432	59,465	39,941	53,946	8.5	166
Sugar and Honey	92,252	124,162	132,080	125,983	117,475	78,725	107,394	16.9	85
Cof. + Tea + Coc. + SP	17,996	8,930	13,046	20,611	23,534	13,471	19,205	3.0	75
Fedingstuffs	9,219	8,603	10,477	11,657	11,275	10,524	11,152	1.8	114
Miscellan. Food	13,823	17,733	11,493	16,358	15,353	9,016	13,576	2.1	65
BEVERAGES + TOBACCO	10,573	8,879	10,859	21,138	34,902	25,495	27,178	4.3	241
Beverages	6,307	4,053	5,947	5,156	6,895	5,630	5,894	0.9	89
Tobacco	4,266	4,826	4,912	15,982	28,007	19,865	21,285	3.4	466
CRUDE MATERIALS	22,656	24,455	29,485	35,560	35,974	26,131	32,555	5.1	115
Hides and Skins	41	6	46	196	175	90	154	0.0	205
Oilseeds	1	106	398	1,657	353	1,156	1,055	0.2	115,600
Natural Rubber	24	1,999	2,028	278	9	5	97	0.0	21
Textile Fibres	15,218	11,904	14,117	21,918	23,238	17,349	20,835	3.3	114
Crude Mater. NES	7,369	10,440	12,896	11,511	12,199	7,531	10,414	1.6	102
ANIMAL VEGET. OIL	16,968	13,728	13,215	16,956	23,133	36,035	25,375	4.0	212
Animal Fats	3,884	3,542	2,385	2,518	2,934	2,333	2,595	0.4	60
Fixed Veget. Oils	4,973	5,502	9,605	13,020	18,217	32,123	21,120	3.3	646
Processed Oils	8,111	4,684	1,225	1,418	1,982	1,579	1,660	0.3	19
FISH+FISHERY PRODUCTS	37,197	22,643	45,089	53,116	58,391	45,695	52,401	8.3	123
FOREST PRODUCTS	80,278	60,404	73,268	69,937	41,860	41,860	51,219	8.1	52
MEMO ITEMS									
AGRICULT. REQUISITES	82,634	46,025	88,289	82,996	75,760	66,518	75,091		80
Crude Fertilizers	631	662	1,476	416	584	130	377		21
Manuf. Fertilizers	64,658	31,820	64,810	58,994	48,844	43,406	50,415		67
Pesticides	9,105	8,770	13,035	11,431	14,127	12,931	12,830		142
Agricultural Machines	8,240	4,773	8,938	12,155	12,205	10,051	11,470		122
(2) Export									
TOTAL MERCHANDISE TRADE	1,459,853	1,554,313	1,915,592	1,973,395	2,472,695	2,897,868	2,447,986		199
AGRIC. + FISHERY + FOREST. TOTAL	663,595	669,074	768,064	683,112	663,284	465,581	603,992	100.0	70
AGRIC. PRODUCTS. TOTAL	637,213	645,662	745,274	661,573	632,429	441,434	578,479	91.3	69
FOOD AND ANIMALS	478,732	495,030	617,775	552,226	483,323	348,766	461,438	72.8	73
Live Animals	21	8	15	4	144		74	0.0	0
Meat + Meat Prep	498	608	991	1,385	1,346	857	1,196	0.2	172
Dairy Prod. + Eggs	1,285	716	1,764	638	805	777	740	0.1	60
Cereals and Prep.	813	483	456	1,100	1,359	1,358	1,272	0.2	167
Fruit + Vegetables	35,672	48,929	60,836	65,673	82,102	37,804	61,860	9.8	106
Sugar and Honey	740	8,142	203	147	189	132	156	0.0	18
Cof. + Tea + Coc. + SP	427,714	418,183	534,661	468,519	381,928	292,710	381,062	60.1	68
Fedingstuffs	8,753	13,049	14,011	10,105	9,927	9,224	9,752	1.5	105
Miscellan. Food	3,236	4,912	4,838	4,655	5,523	5,874	5,351	0.8	182
BEVERAGES + TOBACCO	4,422	4,799	6,409	13,372	43,026	26,667	27,688	4.4	603
Beverages	907	721	253	435	355	307	366	0.1	34
Tobacco	3,515	4,078	6,156	12,937	42,671	26,360	27,323	4.3	750
CRUDE MATERIALS	148,080	124,020	113,576	94,952	103,550	64,840	87,781	13.9	44
Hides and Skins	304	122	91	11	32	38	27	0.0	13
Oilseeds	6,169	4,363	7,805	5,574	5,669	2,374	4,539	0.7	38
Natural Rubber	115,005	88,182	76,979	63,388	68,062	41,757	57,736	9.1	36
Textile Fibres	15,911	20,636	17,513	13,991	16,296	9,940	13,410	2.1	62
Crude Mater. NES	10,691	10,717	11,188	11,955	13,491	10,731	12,069	1.9	100
ANIMAL VEGET. OIL	5,979	21,813	7,514	1,023	2,530	1,161	1,571	0.2	19
Animal Fats	12	16	13	27	16	3	15	0.0	25
Fixed Veget. Oils	5,967	21,781	7,496	989	2,513	1,128	1,543	0.2	19
Processed Oils		16	5	7	1	30	13	0.0	-
FISH+FISHERY PRODUCTS	26,382	23,412	22,514	21,477	30,828	24,120	25,475	4.0	91
FOREST PRODUCTS			246	62	27	27	39	0.0	-
MEMO ITEMS									
AGRICULT. REQUISITES	1,035	656	631	814	673	532	673		51
Crude Fertilizers	12	45	40	99	76	87	87		725
Manuf. Fertilizers	12	46	31	34	24	9	22		75
Pesticides	921	524	541	577	550	373	500		40
Agricultural Machines	90	41	16	104	23	63	63		70

Source: FAO Trade Yearbook, 1993

Table 1.2 Present Land Use in Southern Area in 1995

	Galle		Matara		Sub-total		Hambantota		Moneragala		Ratnapura		Ampara		Sub-total		Total	
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
Agricultural land																		
1 Homesteads	45,085	(28.2)	37,144	(28.6)	82,229	(28.4)	37,307	(14.1)	25,496	(6.4)	14,392	(25.2)	2,464	(2.9)	79,659	(9.9)	161,888	(14.7)
2 Tree and other perennial crops																		
a. Tea	15,302	(9.6)	19,445	(15.0)	34,747	(12.0)	74	(0.0)	39	(0.0)	1,421	(2.5)	0	(0.0)	1,534	(0.2)	36,281	(3.3)
b. Rubber	14,515	(9.1)	6,426	(5.0)	20,941	(7.2)	604	(0.2)	2,262	(0.6)	401	(0.7)	0	(0.0)	3,267	(0.4)	24,208	(2.2)
c. Coconut	2,367	(1.5)	5,289	(4.1)	7,656	(2.6)	9,153	(3.5)	118	(0.0)	122	(0.2)	0	(0.0)	9,393	(1.2)	17,049	(1.6)
d. Cinnamon	6,534	(4.1)	2,646	(2.0)	9,180	(3.2)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	9,180	(0.8)
e. Mixed and other perennial cror	3,068	(1.9)	3,747	(2.9)	6,815	(2.4)	943	(0.4)	377	(0.1)	71	(0.1)	0	(0.0)	1,391	(0.2)	8,206	(0.7)
Sub-total	41,786	(26.1)	37,553	(28.9)	79,339	(27.4)	10,774	(4.1)	2,796	(0.7)	2,015	(3.5)	0	(0.0)	15,585	(1.9)	94,924	(8.6)
3 Paddy land	27,156	(17.0)	18,189	(14.0)	45,345	(15.7)	44,663	(16.8)	14,576	(3.6)	6,674	(11.7)	1,402	(1.7)	67,315	(8.3)	112,660	(10.3)
4 Sparsely used other crop land	16,828	(10.5)	10,760	(8.3)	27,588	(9.5)	66,701	(25.2)	154,212	(38.5)	26,976	(47.2)	4,958	(5.8)	252,847	(31.3)	280,435	(25.5)
5 Forest																		
a. Dense forests	18,960	(11.9)	16,315	(12.6)	35,275	(12.2)	11,323	(4.3)	142,589	(35.6)	2,374	(4.2)	58,129	(68.5)	214,415	(26.5)	249,690	(22.7)
b. Open forests	2,563	(1.6)	2,841	(2.2)	5,404	(1.9)	35,969	(13.6)	17,920	(4.5)	624	(1.1)	8,949	(10.5)	63,462	(7.9)	68,866	(6.3)
c. Plantations	224	(0.1)	455	(0.4)	679	(0.2)	411	(0.2)	4,130	(1.0)	593	(1.0)	526	(0.6)	5,660	(0.7)	6,339	(0.6)
Sub-total	21,747	(13.6)	19,611	(15.1)	41,358	(14.3)	47,703	(18.0)	164,639	(41.1)	3,591	(6.3)	67,604	(79.6)	283,537	(35.1)	324,895	(29.6)
6 Scrub grass land	1,923	(1.2)	3,126	(2.4)	5,049	(1.7)	35,967	(13.6)	24,463	(6.1)	1,328	(2.3)	3,794	(4.5)	65,552	(8.1)	70,601	(6.4)
Sub-total	154,525	(96.6)	126,383	(97.4)	280,908	(97.0)	243,115	(91.7)	386,182	(96.3)	54,976	(96.3)	80,222	(94.5)	764,495	(94.6)	1,045,403	(95.2)
(1 + 2 + 3)	114,027	(71.3)	92,886	(71.6)	206,913	(71.4)	92,744	(35.0)	42,868	(10.7)	23,081	(40.4)	3,866	(4.6)	162,559	(20.1)	369,472	(33.7)
(4 + 5b + 6)	21,314	(13.3)	16,727	(12.9)	38,041	(13.1)	138,637	(52.3)	196,595	(49.0)	28,928	(50.7)	17,701	(20.9)	381,861	(47.2)	419,902	(38.2)
Non-agricultural land																		
7 Built-up land	719	(0.4)	584	(0.5)	1,303	(0.4)	1,047	(0.4)	311	(0.1)	55	(0.1)	0	(0.0)	1,413	(0.2)	2,716	(0.2)
8 Wet land	1,286	(0.8)	1,073	(0.8)	2,359	(0.8)	1,058	(0.4)	830	(0.2)	0	(0.0)	42	(0.0)	1,930	(0.2)	4,289	(0.4)
9 Water	3,047	(1.9)	1,484	(1.1)	4,531	(1.6)	16,565	(6.2)	10,222	(2.5)	1,986	(3.5)	3,605	(4.2)	32,378	(4.0)	36,909	(3.4)
10 Barren land	370	(0.2)	222	(0.2)	592	(0.2)	3,424	(1.3)	3,506	(0.9)	94	(0.2)	1027	(1.2)	8,051	(1.0)	8,643	(0.8)
Sub-total	5,422	(3.4)	3,363	(2.6)	8,785	(3.0)	22,094	(8.3)	14,869	(3.7)	2,135	(3.7)	4,674	(5.5)	43,772	(5.4)	52,557	(4.8)
Total	159,947	(100.0)	129,746	(100.0)	289,693	(100.0)	265,209	(100.0)	401,051	(100.0)	57,111	(100.0)	84,896	(100.0)	808,267	(100.0)	1,097,960	(100.0)

Source: GIS information, JICA Study Team

Table 1.3 Agricultural Land under Small Holdings and Estate Sector by District Related to Southern Area (1982)

District	Small Holdings Area (ha)	(total= 100)	Estate Area (ha)	(total= 100)	Total Area (ha)	(total= 100)
1) Galle District	70,074	(74.4)	24,114	(25.6)	94,188	(100.0)
2) Matara District	63,011	(78.5)	17,281	(21.5)	80,292	(100.0)
3) Hambantota District	66,769	(91.2)	6,410	(8.8)	73,179	(100.0)
4) Moneragala District	54,620	(85.4)	9,304	(14.6)	63,924	(100.0)
5) Ratnapura District	83,108	(61.2)	52,580	(38.8)	135,689	(100.0)
6) Ampara District	53,719	(85.8)	8,904	(14.2)	62,623	(100.0)
6 District Total	391,303	(76.7)	118,593	(23.3)	509,896	(100.0)
Other than Southern Are	1,043,874	(71.3)	419,512	(28.7)	1,463,386	(100.0)
Sri Lanka total	1,435,177	(72.7)	538,104	(27.3)	1,973,281	(100.0)

Source: Census of Agriculture 1982, Department of Census and Statistics

Table 1.4 Agricultural Holdings under Small Holdings and Estate Sector by District Related to Southern Area (1982)

District	Small Holdings Number (No.)	(total= 100)	Estate Number (No.)	(total= 100)	Total Number (No.)	(total= 100)
1) Galle District	116,235	(99.6)	476	(0.4)	116,711	(100.0)
2) Matara District	96,202	(99.5)	511	(0.5)	96,713	(100.0)
3) Hambantota District	67,463	(99.7)	186	(0.3)	67,649	(100.0)
4) Moneragala District	40,063	(99.9)	53	(0.1)	40,116	(100.0)
5) Ratnapura District	106,594	(99.4)	614	(0.6)	107,208	(100.0)
6) Ampara District	58,861	(99.9)	30	(0.1)	58,891	(100.0)
6 District Total	485,418	(99.6)	1,870	(0.4)	487,288	(100.0)
Other than Southern Are	1,305,529	(99.4)	7,421	(0.6)	1,312,950	(100.0)
Sri Lanka total	1,790,947	(99.5)	9,291	(0.5)	1,800,238	(100.0)

Source: Census of Agriculture 1982, Department of Census and Statistics

Table 1.5 Average Holding Size of Agricultural Land under Small Holdings and Estate Sector by District Related to Southern Area (1982)

District	Small Holdings Area (ha)	(S.L.= 100)	Estate Area (ha)	(S.L.= 100)	Average Area (ha)	(S.L.= 100)
1) Galle District	0.60	(75.2)	50.66	(87.5)	0.81	(73.6)
2) Matara District	0.65	(81.7)	33.82	(58.4)	0.83	(75.7)
3) Hambantota District	0.99	(123.5)	34.46	(59.5)	1.08	(98.7)
4) Moneragala District	1.36	(170.1)	175.54	(303.1)	1.59	(145.4)
5) Ratnapura District	0.78	(97.3)	85.64	(147.9)	1.27	(115.5)
6) Ampara District	0.91	(113.9)	296.80	(512.5)	1.06	(97.0)
6 District Total	0.81	(100.6)	63.42	(109.5)	1.05	(95.5)
Other than Southern Are	0.80	(99.8)	56.53	(97.6)	1.11	(101.7)
Sri Lanka total	0.80	(100.0)	57.92	(100.0)	1.10	(100.0)

Source: Census of Agriculture 1982, Department of Census and Statistics

Table 1.6 Land Holding and Ownership of Small Holdings Sector by District Related to Southern Area in 1982 (1/2)

	Galle		Matara		Hambantota		Moneragala		Ratnapura		Ampara		Sri Lanka	
I. Number of Operators and Area Owned by the Type of Ownership of Land														
1. No. of Operators by the Type of Ownership of Land	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)
1) Owning home garden and other land	33.4	(28.7)	24.9	(25.8)	14.8	(21.9)	17.8	(38.6)	33.2	(31.2)	20.1	(34.0)	555.6	(31.0)
2) Owning other land only	22.1	(19.0)	21.2	(22.0)	17.4	(25.7)	2.3	(4.9)	11.3	(10.6)	7.5	(12.7)	349.8	(19.5)
3) Owning home garden only	53.7	(46.1)	40.0	(41.4)	20.5	(30.4)	19.1	(41.4)	42.6	(40.0)	25.3	(42.9)	690.3	(38.5)
4) Not owning any land	7.3	(6.3)	10.4	(10.8)	14.9	(22.0)	7.0	(15.1)	19.4	(18.2)	6.1	(10.4)	197.6	(11.0)
Total number of Operators	116.5	(100.0)	96.4	(100.0)	67.5	(100.0)	46.2	(100.0)	106.5	(100.0)	58.9	(100.0)	1,793.2	(100.0)
2. Area Owned by the Type of Ownership of Land	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)
1) Owning home garden and other land	32.0	(53.4)	22.1	(45.4)	20.1	(42.2)	28.4	(63.5)	38.5	(60.1)	33.0	(71.1)	656.7	(55.2)
2) Owning other land only	18.2	(30.4)	19.3	(39.6)	20.6	(43.4)	2.4	(5.3)	10.5	(16.4)	8.7	(18.8)	368.3	(30.9)
3) Owning home garden only	9.7	(16.2)	7.3	(15.0)	6.9	(14.5)	14.0	(31.2)	15.1	(23.5)	4.7	(10.1)	165.1	(13.9)
4) Not owning any land	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Total number of Operators	60.0	(100.0)	48.8	(100.0)	47.5	(100.0)	44.7	(100.0)	64.1	(100.0)	46.5	(100.0)	1,190.1	(100.0)
3. Average Size	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
1) Owning home garden and other land	0.96	(186.1)	0.89	(175.8)	1.36	(192.7)	1.59	(164.6)	1.16	(192.8)	1.65	(208.8)	1.18	(177.9)
2) Owning other land only	0.82	(160.2)	0.91	(180.3)	1.19	(168.6)	1.04	(107.4)	0.93	(154.3)	1.17	(147.8)	1.05	(158.8)
3) Owning home garden only	0.18	(35.2)	0.18	(36.2)	0.34	(47.6)	0.73	(75.4)	0.35	(58.8)	0.19	(23.6)	0.24	(36.1)
4) Not owning any land	0.00	(0.0)	0.00	(0.0)	0.00	(0.0)	0.00	(0.0)	0.00	(0.0)	0.00	(0.0)	0.00	(0.0)
Total number of Operators	0.51	(100.0)	0.51	(100.0)	0.70	(100.0)	0.97	(100.0)	0.60	(100.0)	0.79	(100.0)	0.66	(100.0)
II. Number and Area of Operational Holdings by Type														
1. No. of Holdings Operational Holdings by Type	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)
1) Holdings with crops and livestock	13.3	(11.4)	17.9	(18.6)	12.0	(17.8)	15.6	(33.8)	15.4	(14.4)	23.2	(39.5)	557.1	(31.1)
2) Holdings with crops only	101.3	(87.2)	77.3	(80.4)	54.3	(80.5)	29.8	(64.7)	90.4	(84.8)	31.0	(52.6)	1,184.9	(66.2)
3) Holdings with livestock only	1.6	(1.4)	1.0	(1.0)	1.1	(1.7)	0.7	(1.6)	0.8	(0.8)	4.6	(7.9)	49.0	(2.7)
Total number of Holdings	116.2	(100.0)	96.2	(100.0)	67.5	(100.0)	46.1	(100.0)	106.6	(100.0)	58.9	(100.0)	1,790.9	(100.0)
2. Area Owned by the Type of Ownership of Land	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)
1) Holdings with crops and livestock	5.4	(16.2)	7.3	(21.4)	4.9	(15.0)	6.3	(27.8)	6.2	(19.6)	9.4	(41.2)	225.5	(29.7)
2) Holdings with crops only	18.2	(54.7)	19.3	(57.0)	20.6	(63.7)	2.4	(10.5)	10.5	(33.0)	8.7	(38.2)	368.3	(48.5)
3) Holdings with livestock only	9.7	(29.2)	7.3	(21.6)	6.9	(21.3)	14.0	(61.7)	15.1	(47.4)	4.7	(20.6)	165.1	(21.8)
Total number of Operators	33.4	(100.0)	33.9	(100.0)	32.4	(100.0)	22.6	(100.0)	31.8	(100.0)	22.8	(100.0)	758.9	(100.0)
3. Average Size	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
1) Holdings with crops and livestock	0.40	(141.1)	0.40	(114.9)	0.40	(84.4)	0.40	(82.4)	0.40	(135.9)	0.40	(104.3)	0.40	(95.5)
2) Holdings with crops only	0.18	(62.7)	0.25	(71.0)	0.38	(79.4)	0.08	(16.2)	0.12	(38.9)	0.28	(72.6)	0.31	(73.4)
3) Holdings with livestock only	6.04	(2101)	7.56	(2146)	6.15	(1281)	19.43	(3957)	17.79	(5972)	1.01	(262)	3.37	(796)
Total number of Operators	0.29	(100.0)	0.35	(100.0)	0.48	(100.0)	0.49	(100.0)	0.30	(100.0)	0.39	(100.0)	0.42	(100.0)
III. Number of Holdings and Operated Area under Different Categories														
1. No. of Holdings	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)
1) Paddy land owned by operator	28.6	(15.6)	20.5	(13.1)	13.8	(13.5)	12.6	(16.5)	19.2	(11.1)	20.7	(23.1)	533.8	(18.4)
2) Paddy land owned by others	14.5	(7.9)	22.1	(14.1)	11.1	(10.8)	5.1	(6.7)	22.0	(12.7)	5.7	(6.4)	263.0	(9.1)
3) Other highlands owned by operator	42.9	(23.4)	37.8	(24.2)	24.5	(23.9)	12.5	(16.5)	33.2	(19.1)	10.9	(12.2)	613.7	(21.1)
4) Other highlands owned by others	5.8	(3.2)	8.4	(5.4)	11.3	(11.1)	5.0	(6.6)	10.1	(5.8)	4.3	(4.8)	156.9	(5.4)
5) Home garden	91.1	(49.8)	67.6	(43.2)	41.4	(40.5)	40.7	(53.7)	88.9	(51.2)	47.6	(53.3)	1,331.9	(45.9)
6) Unspecified	0.2	(0.1)	0.1	(0.0)	0.2	(0.2)	0.0	(0.1)	0.2	(0.1)	0.2	(0.2)	4.8	(0.2)
Total number of holdings	183.1	(100.0)	156.6	(100.0)	102.2	(100.0)	75.9	(100.0)	173.6	(100.0)	89.3	(100.0)	2,904.2	(100.0)
2. Area under each Category	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)
1) Paddy land owned by operator	11.4	(16.2)	7.2	(11.5)	11.0	(16.5)	7.8	(14.2)	8.2	(9.9)	28.2	(52.5)	361.5	(25.2)
2) Paddy land owned by others	6.3	(9.0)	9.7	(15.4)	9.7	(14.6)	2.5	(4.5)	7.3	(8.8)	5.2	(9.7)	129.6	(9.0)
3) Other highlands owned by operator	29.6	(42.2)	27.2	(43.1)	22.3	(33.4)	11.4	(20.9)	27.3	(32.8)	6.8	(12.7)	461.5	(32.1)
4) Other highlands owned by others	4.3	(6.2)	5.6	(8.9)	9.0	(13.5)	4.4	(8.1)	7.6	(9.1)	3.3	(6.2)	115.9	(8.1)
5) Home garden	18.5	(26.4)	13.3	(21.1)	14.6	(21.9)	28.6	(52.3)	32.7	(39.3)	10.2	(18.9)	367.5	(25.6)
6) Unspecified	0.0	(0.0)	0.1	(0.1)	0.0	(0.0)	0.0	(0.0)	0.1	(0.1)	0.0	(0.1)	0.4	(0.0)
Total number of holdings	20.1	(100.0)	63.1	(100.0)	66.8	(100.0)	54.8	(100.0)	83.2	(100.0)	53.7	(100.0)	1,436.3	(100.0)
3. Average Size	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
1) Paddy land owned by operator	0.40	(103.6)	0.35	(87.4)	0.80	(122.6)	0.62	(86.0)	0.43	(89.4)	1.37	(227.2)	0.68	(136.9)
2) Paddy land owned by others	0.43	(113.6)	0.44	(109.0)	0.88	(134.8)	0.49	(67.6)	0.33	(69.0)	0.91	(151.2)	0.49	(99.6)
3) Other highlands owned by operator	0.69	(180.2)	0.72	(178.3)	0.91	(139.6)	0.92	(126.8)	0.82	(171.8)	0.63	(104.1)	0.75	(152.0)
4) Other highlands owned by others	0.75	(195.7)	0.67	(165.7)	0.80	(121.8)	0.89	(123.6)	0.75	(156.4)	0.77	(127.4)	0.74	(149.3)
5) Home garden	0.20	(53.1)	0.20	(48.8)	0.35	(51.2)	0.70	(97.3)	0.37	(76.8)	0.21	(35.5)	0.28	(55.8)
6) Unspecified	0.03	(8.9)	0.91	(232.4)	0.06	(9.8)	0.18	(24.4)	0.30	(63.4)	0.21	(34.1)	0.09	(17.5)
Total number of holdings	0.38	(100.0)	0.40	(100.0)	0.65	(100.0)	0.72	(100.0)	0.48	(100.0)	0.60	(100.0)	0.49	(100.0)

Table 1.6 Land Holding and Ownership of Small Holdings Sector by District Related to Southern Area in 1982 (2/2)

	Galle		Matara		Hambantota		Moneragala		Ratnapura		Ampara		Sri Lanka	
IV. Number and Area of Paddy Land by Holding Size														
1. No. of Holdings	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)
1) Less than 0.1 ha	2.8	(7.1)	3.7	(9.7)	0.9	(3.7)	0.2	(1.1)	2.1	(5.4)	0.1	(0.5)	40.5	(5.5)
2) 0.1 - 0.4 ha	18.9	(47.8)	17.9	(47.1)	4.6	(19.6)	5.0	(30.2)	21.5	(55.3)	1.5	(5.9)	279.5	(38.1)
3) 0.4 - 0.8 ha	11.6	(29.5)	10.6	(27.7)	5.2	(22.2)	5.9	(35.3)	9.5	(24.5)	4.8	(18.8)	174.6	(23.8)
4) 0.8 - 1.2 ha	3.6	(9.2)	3.4	(8.9)	6.2	(26.7)	3.2	(19.0)	3.7	(9.4)	5.4	(21.0)	114.3	(15.6)
5) 1.2 - 2.0 ha	1.9	(4.7)	2.0	(5.2)	4.6	(19.9)	1.9	(11.2)	1.8	(4.7)	10.0	(39.1)	84.1	(11.5)
6) 2.0 - 4.0 ha	0.6	(1.5)	0.5	(1.2)	1.6	(6.9)	0.5	(2.8)	0.2	(0.6)	2.7	(10.6)	32.7	(4.5)
7) More than 4.0 ha	0.1	(0.3)	0.1	(0.2)	0.2	(0.9)	0.1	(0.4)	0.1	(0.2)	1.0	(4.1)	8.9	(1.2)
Total number of holdings	39.5	(100.0)	38.1	(100.0)	23.3	(100.0)	16.6	(100.0)	38.9	(100.0)	25.6	(100.0)	734.5	(100.0)
2. Area	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)
1) Less than 0.1 ha	0.2	(0.9)	0.2	(1.2)	0.0	(0.2)	0.0	(0.1)	0.1	(0.7)	0.0	(0.0)	2.2	(0.4)
2) 0.1 - 0.4 ha	3.8	(21.6)	3.8	(22.5)	0.9	(4.4)	1.0	(9.3)	4.3	(27.6)	0.3	(0.9)	55.5	(11.3)
3) 0.4 - 0.8 ha	5.7	(32.4)	5.5	(32.3)	2.6	(12.5)	2.7	(26.1)	4.6	(29.8)	2.3	(6.8)	85.1	(17.3)
4) 0.8 - 1.2 ha	3.2	(18.2)	3.1	(18.3)	5.6	(26.9)	2.7	(26.1)	3.2	(20.5)	4.5	(13.6)	101.5	(20.7)
5) 1.2 - 2.0 ha	2.6	(14.9)	2.8	(16.7)	6.5	(31.2)	2.4	(23.6)	2.3	(14.9)	13.3	(39.8)	112.9	(23.0)
6) 2.0 - 4.0 ha	1.5	(8.4)	1.1	(6.6)	3.9	(18.6)	1.1	(10.5)	0.6	(3.9)	6.8	(20.2)	78.2	(15.9)
7) More than 4.0 ha	0.6	(3.5)	0.4	(2.4)	1.3	(6.2)	0.4	(4.3)	0.4	(2.6)	6.2	(18.6)	55.6	(11.3)
Total area	17.7	(100.0)	17.0	(100.0)	20.8	(100.0)	10.3	(100.0)	15.5	(100.0)	33.4	(100.0)	491.1	(100.0)
3. Average Holding Size (ha)	0.45		0.41		0.89		0.62		0.40		1.31		0.67	
V. Number of Holdings and Area of Tea by Holding Size														
1. No. of Holdings	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)	('No.'000)	(%)
1) Less than 0.1 ha	0.1	(0.4)	0.0	(0.2)	0.0	(0.0)	0.0	(0.0)	0.0	(0.1)	0.1	(0.5)	0.4	(0.5)
2) 0.1 - 0.4 ha	2.9	(14.5)	1.9	(10.8)	0.0	(0.0)	0.0	(0.0)	1.2	(12.4)	1.5	(5.9)	13.3	(16.6)
3) 0.4 - 0.8 ha	6.8	(34.3)	6.5	(36.6)	0.1	(17.1)	0.0	(5.6)	3.0	(32.5)	4.8	(18.8)	26.5	(33.2)
4) 0.8 - 1.2 ha	4.3	(21.9)	4.5	(25.6)	0.1	(33.6)	0.0	(27.8)	2.5	(26.7)	5.4	(21.0)	17.4	(21.8)
5) 1.2 - 2.0 ha	3.4	(17.4)	2.8	(15.8)	0.1	(34.8)	0.0	(33.3)	1.5	(16.2)	10.0	(39.1)	12.5	(15.6)
6) 2.0 - 4.0 ha	1.7	(8.5)	1.3	(7.5)	0.0	(11.7)	0.0	(22.2)	0.8	(8.4)	2.7	(10.6)	6.8	(8.5)
7) More than 4.0 ha	0.6	(3.0)	0.6	(3.5)	0.0	(2.8)	0.0	(11.1)	0.4	(3.8)	1.0	(4.1)	3.0	(3.7)
Total number of holdings	19.7	(100.0)	17.6	(100.0)	0.4	(100.0)	0.0	(100.0)	9.3	(100.0)	25.6	(100.0)	79.9	(100.0)
2. Area	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)	('000ha)	(%)
1) Less than 0.1 ha	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	-	0.0	(0.0)
2) 0.1 - 0.4 ha	0.7	(3.1)	0.4	(2.3)	0.0	(0.0)	0.0	(0.0)	0.3	(2.6)	0.0	-	1.8	(4.6)
3) 0.4 - 0.8 ha	3.5	(16.1)	3.3	(17.0)	0.0	(5.9)	0.0	(1.8)	1.6	(14.9)	0.0	-	6.5	(17.0)
4) 0.8 - 1.2 ha	4.0	(18.5)	4.2	(21.7)	0.1	(21.3)	0.0	(9.6)	2.3	(21.5)	0.0	-	7.3	(18.9)
5) 1.2 - 2.0 ha	5.1	(23.4)	3.9	(20.0)	0.2	(35.6)	0.0	(19.3)	2.2	(20.4)	0.0	-	6.8	(17.7)
6) 2.0 - 4.0 ha	4.4	(20.0)	3.5	(17.7)	0.1	(22.1)	0.0	(25.4)	2.1	(18.9)	0.0	-	7.0	(18.1)
7) More than 4.0 ha	4.1	(18.8)	4.2	(21.5)	0.1	(15.1)	0.0	(43.9)	2.3	(21.7)	0.0	-	9.1	(23.6)
Total area	21.8	(100.0)	19.6	(100.0)	0.5	(100.0)	0.0	(100.0)	10.8	(100.0)	0.0	-	38.5	(100.0)
3. Average Holding Size (ha)	1.11		1.11		1.42		2.56		1.16		-		0.48	

Source: Census of Agriculture, 1982, Department of Census and Statistics

Table 1.7 Cultivated Area, Production and Yield of Major Crops in Southern Area (1/2)

Crop / District	Maha 1992/93					Yala 1993					Total Production		
	Area	Yield	Production	Share in S.Area	Share in S. Lanka	Area	Yield	Production	Share in S.Area	Share in S. Lanka		Share in S.Area	Share in S. Lanka
	(ha)	(ton/ha)	(ton)	(%)	(%)	(ha)	(ton/ha)	(ton)	(%)	(%)	(ton)	(%)	(%)
Paddy													
Galle	14,550	2.67	38,860	(18.5)	(2.3)	11,527	1.89	21,767	(19.5)	(2.5)	60,627	(18.8)	(2.4)
Matara	14,905	2.89	43,138	(20.5)	(2.5)	12,337	2.66	32,787	(29.3)	(3.7)	75,925	(23.6)	(3.0)
Hambantota	19,152	4.89	93,602	(44.5)	(5.5)	10,196	4.86	49,545	(44.3)	(5.6)	143,147	(44.5)	(5.6)
Moneragala	7,943	3.80	30,220	(14.4)	(1.8)	1,021	3.82	3,903	(3.5)	(0.4)	34,122	(10.6)	(1.3)
Ratnapura	749	3.62	2,713	(1.3)	(0.2)	532	4.32	2,296	(2.1)	(0.3)	5,009	(1.6)	(0.2)
Ampara	627	2.56	1,607	(0.8)	(0.1)	419	3.59	1,503	(1.3)	(0.2)	3,110	(1.0)	(0.1)
Study Area Total	57,927	3.63	210,140	(100.0)	(12.4)	36,033	3.10	111,801	(100.0)	(12.7)	321,941	(100.0)	(12.5)
Sri Lanka Total	480,572	3.52	1,693,058		(100.0)	252,321	3.48	878,397		(100.0)	2,571,455		(100.0)
Kurakkan													
Galle	0	-	0	(0.0)	(0.0)	0	-	0	(0.0)	(0.0)	0	(0.0)	(0.0)
Matara	8	0.36	3	(0.2)	(0.0)	15	0.37	6	(1.7)	(0.5)	8	(0.4)	(0.1)
Hambantota	916	1.06	970	(54.4)	(16.4)	242	0.77	187	(56.1)	(16.6)	1,157	(54.6)	(16.4)
Moneragala	899	0.82	737	(41.3)	(12.5)	86	0.75	64	(19.1)	(5.7)	801	(37.8)	(11.4)
Ratnapura	117	0.56	65	(3.7)	(1.1)	131	0.59	77	(23.1)	(6.9)	142	(6.7)	(2.0)
Ampara	15	0.62	9	(0.5)	(0.2)	0	-	0	(0.0)	(0.0)	9	(0.4)	(0.1)
Study Area Total	1,955	0.91	1,784	(100.0)	(30.2)	474	0.71	334	(100.0)	(29.7)	2,118	(100.0)	(30.1)
Sri Lanka Total	8,419	0.70	5,912		(100.0)	1,901	0.59	1,126		(100.0)	7,038		(100.0)
Maize													
Galle	0	-	0	(0.0)	(0.0)	0	-	0	(0.0)	(0.0)	0	(0.0)	(0.0)
Matara	0	-	0	(0.0)	(0.0)	0	-	0	(0.0)	(0.0)	0	(0.0)	(0.0)
Hambantota	538	1.01	542	(13.4)	(1.7)	155	0.84	130	(55.2)	(8.8)	671	(15.7)	(2.1)
Moneragala	3,161	0.97	3,081	(76.3)	(9.9)	45	1.74	77	(33.0)	(5.2)	3,159	(73.9)	(9.7)
Ratnapura	240	0.69	167	(4.1)	(0.5)	46	0.61	28	(11.8)	(1.9)	194	(4.6)	(0.6)
Ampara	199	1.25	249	(6.2)	(0.8)	0	-	0	(0.0)	(0.0)	249	(5.8)	(0.8)
Study Area Total	4,139	0.98	4,039	(100.0)	(13.0)	245	0.96	235	(100.0)	(15.9)	4,273	(100.0)	(13.1)
Sri Lanka Total	30,811	1.01	31,074		(100.0)	1,792	0.82	1,477		(100.0)	32,551		(100.0)
Green gram													
Galle	0	1.17	0	(0.0)	(0.0)	0	-	0	(0.0)	(0.0)	0	(0.0)	(0.0)
Matara	19	0.40	8	(0.1)	(0.1)	3	0.52	2	(0.1)	(0.0)	9	(0.1)	(0.0)
Hambantota	3,100	1.24	3,835	(48.1)	(24.7)	1,156	0.84	971	(59.6)	(17.5)	4,805	(50.0)	(22.8)
Moneragala	3,690	0.97	3,586	(45.0)	(23.1)	308	1.01	310	(19.0)	(5.6)	3,896	(40.6)	(18.5)
Ratnapura	310	0.71	219	(2.7)	(1.4)	470	0.64	303	(18.6)	(5.5)	521	(5.4)	(2.5)
Ampara	301	1.09	329	(4.1)	(2.1)	51	0.87	44	(2.7)	(0.8)	373	(3.9)	(1.8)
Study Area Total	7,422	1.07	7,976	(100.0)	(51.3)	1,988	0.82	1,629	(100.0)	(29.4)	9,606	(100.0)	(45.6)
Sri Lanka Total	17,884	0.87	15,540		(100.0)	7,233	0.77	5,536		(100.0)	21,076		(100.0)
Cowpea													
Galle	0	-	0	(0.0)	(0.0)	0	-	0	(0.0)	(0.0)	0	(0.0)	(0.0)
Matara	2	0.73	1	(0.0)	(0.0)	0	-	0	(0.0)	(0.0)	1	(0.0)	(0.0)
Hambantota	937	1.25	1,173	(30.3)	(8.0)	268	1.23	328	(36.9)	(7.0)	1,501	(31.5)	(7.7)
Moneragala	1,777	1.14	2,032	(52.5)	(13.8)	289	1.22	354	(39.8)	(7.5)	2,386	(50.1)	(12.3)
Ratnapura	494	0.80	396	(10.2)	(2.7)	127	1.23	156	(17.5)	(3.3)	552	(11.6)	(2.8)
Ampara	308	0.87	269	(7.0)	(1.8)	47	1.09	51	(5.7)	(1.1)	320	(6.7)	(1.7)
Study Area Total	3,518	1.10	3,872	(100.0)	(26.4)	731	1.22	889	(100.0)	(18.9)	4,761	(100.0)	(24.6)
Sri Lanka Total	16,796	0.87	14,692		(100.0)	5,426	0.87	4,694		(100.0)	19,387		(100.0)
Manioc													
Galle	745	5.69	4,241	(15.1)	(2.3)	577	4.26	2,455	(14.0)	(1.9)	6,697	(14.7)	(2.2)
Matara	611	8.00	4,883	(17.4)	(2.7)	525	8.56	4,493	(25.6)	(3.5)	9,376	(20.5)	(3.0)
Hambantota	901	7.98	7,195	(25.6)	(4.0)	790	8.76	6,921	(39.4)	(5.4)	14,115	(30.9)	(4.6)
Moneragala	1,014	9.98	10,125	(36.0)	(5.6)	104	5.82	605	(3.4)	(0.5)	10,730	(23.5)	(3.5)
Ratnapura	264	5.62	1,484	(5.3)	(0.8)	436	6.70	2,919	(16.6)	(2.3)	4,403	(9.6)	(1.4)
Ampara	16	10.04	163	(0.6)	(0.1)	19	10.04	187	(1.1)	(0.1)	350	(0.8)	(0.1)
Study Area Total	3,551	7.91	28,091	(100.0)	(15.5)	2,450	7.17	17,580	(100.0)	(13.7)	45,671	(100.0)	(14.8)
Sri Lanka Total	19,912	9.09	181,044		(100.0)	14,330	8.93	127,985		(100.0)	309,029		(100.0)
Sweet potatoes													
Galle	412	4.95	2,038	(31.1)	(8.3)	267	3.73	995	(17.4)	(3.1)	3,034	(24.7)	(5.3)
Matara	245	6.01	1,472	(22.4)	(6.0)	238	6.75	1,606	(28.1)	(4.9)	3,077	(25.1)	(5.4)
Hambantota	211	6.73	1,422	(21.7)	(5.8)	233	8.20	1,908	(33.4)	(5.9)	3,330	(27.1)	(5.8)
Moneragala	144	4.09	590	(9.0)	(2.4)	8	2.51	20	(0.4)	(0.1)	610	(5.0)	(1.1)
Ratnapura	106	9.52	1,014	(15.4)	(4.1)	129	8.81	1,134	(19.8)	(3.5)	2,148	(17.5)	(3.8)
Ampara	4	6.28	25	(0.4)	(0.1)	6	10.04	57	(1.0)	(0.2)	82	(0.7)	(0.1)
Study Area Total	1,123	5.84	6,561	(100.0)	(26.7)	880	6.50	5,720	(100.0)	(17.6)	12,281	(100.0)	(21.5)
Sri Lanka Total	4,137	5.94	24,588		(100.0)	4,075	7.97	32,465		(100.0)	57,053		(100.0)
Red onion													
Galle	0	-	0	(0.0)	(0.0)	0	-	0	(0.0)	(0.0)	0	(0.0)	(0.0)
Matara	0	-	0	(0.0)	(0.0)	0	-	0	(0.0)	(0.0)	0	(0.0)	(0.0)
Hambantota	135	10.55	1,425	(30.9)	(6.2)	82	5.65	464	(40.1)	(1.9)	1,889	(32.8)	(4.0)
Moneragala	330	6.60	2,177	(47.3)	(9.5)	49	7.37	364	(31.4)	(1.5)	2,541	(44.1)	(5.3)
Ratnapura	256	3.87	991	(21.5)	(4.3)	119	2.76	327	(28.3)	(1.3)	1,318	(22.9)	(2.8)
Ampara	2	5.65	11	(0.2)	(0.0)	0	5.02	2	(0.2)	(0.0)	13	(0.2)	(0.0)
Study Area Total	723	6.37	4,605	(100.0)	(20.1)	251	4.62	1,157	(100.0)	(4.7)	5,761	(100.0)	(12.1)
Sri Lanka Total	3,219	7.11	22,897		(100.0)	3,538	6.95	24,663		(100.0)	47,560		(100.0)

Table 1.7 Cultivated Area, Production and Yield of Major Crops in Southern Area (2/2)

Crop / District	Maha 1992/93					Yala 1993					Total Production		
	Area	Yield	Production	Share in S.Area	Share in S. Lanka	Area	Yield	Production	Share in S.Area	Share in S. Lanka		Share in S.Area	Share in S. Lanka
	(ha)	(ton/ha)	(ton)	(%)	(%)	(ha)	(ton/ha)	(ton)	(%)	(%)	(ton)	(%)	(%)
Gingerly													
Galle	0	-	0	(0.0)	(0.0)	0	-	0	(0.0)	(0.0)	0	(0.0)	(0.0)
Matara	1	0.32	0	(0.1)	(0.0)	0	-	0	(0.0)	(0.0)	0	(0.0)	(0.0)
Hambantota	364	0.69	250	(38.0)	(18.4)	231	0.62	143	(29.6)	(4.1)	393	(34.5)	(8.1)
Moneragala	610	0.63	382	(58.0)	(28.1)	230	0.97	224	(46.3)	(6.4)	605	(53.1)	(12.4)
Ratnapura	37	0.67	25	(3.8)	(1.8)	109	1.07	116	(24.0)	(3.3)	141	(12.4)	(2.9)
Ampara	1	0.63	1	(0.1)	(0.1)	1	0.53	0	(0.1)	(0.0)	1	(0.1)	(0.0)
Study Area Total	1,013	0.65	658	(100.0)	(48.4)	570	0.85	483	(100.0)	(13.7)	1,141	(100.0)	(23.4)
Sri Lanka Total	2,392	0.57	1,360		(100.0)	6,971	0.50	3,519		(100.0)	4,879		(100.0)
Groundnut													
Galle	0	-	0	(0.0)	(0.0)	0	-	0	(0.0)	(0.0)	0	(0.0)	(0.0)
Matara	0	-	0	(0.0)	(0.0)	1	0.30	0	(0.0)	(0.0)	0	(0.0)	(0.0)
Hambantota	527	0.44	231	(22.1)	(6.9)	285	0.34	96	(18.8)	(4.5)	327	(21.0)	(6.0)
Moneragala	1,747	0.40	699	(66.9)	(21.0)	451	0.74	334	(65.3)	(15.6)	1,032	(66.4)	(18.9)
Ratnapura	160	0.71	113	(10.8)	(3.4)	129	0.62	79	(15.5)	(3.7)	192	(12.4)	(3.5)
Ampara	2	0.74	1	(0.1)	(0.0)	3	0.74	2	(0.4)	(0.1)	4	(0.2)	(0.1)
Study Area Total	2,436	0.43	1,044	(100.0)	(31.4)	868	0.59	511	(100.0)	(24.0)	1,555	(100.0)	(28.5)
Sri Lanka Total	6,580	0.50	3,323		(100.0)	3,110	0.69	2,132		(100.0)	5,454		(100.0)
Chillies													
Galle	31	1.47	46	(1.0)	(0.1)	34	1.50	51	(2.0)	(0.1)	97	(1.3)	(0.1)
Matara	116	0.79	91	(1.9)	(0.2)	121	1.37	165	(6.4)	(0.4)	257	(3.5)	(0.3)
Hambantota	176	8.20	1,440	(30.7)	(2.6)	906	2.12	1,918	(74.7)	(4.9)	3,358	(46.3)	(3.5)
Moneragala	1,241	2.19	2,720	(58.0)	(4.9)	170	1.41	240	(9.3)	(0.6)	2,960	(40.8)	(3.1)
Ratnapura	242	1.36	329	(7.0)	(0.6)	154	1.10	169	(6.6)	(0.4)	498	(6.9)	(0.5)
Ampara	26	2.51	66	(1.4)	(0.1)	13	1.88	24	(0.9)	(0.1)	90	(1.2)	(0.1)
Study Area Total	1,833	2.56	4,692	(100.0)	(8.4)	1,398	1.84	2,568	(100.0)	(6.6)	7,260	(100.0)	(7.7)
Sri Lanka Total	20,530	2.72	55,933		(100.0)	14,079	2.75	38,759		(100.0)	94,703		(100.0)
Up country vegetables													
Galle	18	19.17	349	(10.5)	(0.2)	15	16.40	246	(8.2)	(0.2)	595	(9.4)	(0.2)
Matara	65	12.26	797	(23.9)	(0.5)	49	12.56	621	(20.8)	(0.4)	1,417	(22.4)	(0.4)
Hambantota	46	21.28	978	(29.3)	(0.6)	46	28.11	1,293	(43.3)	(0.8)	2,270	(36.0)	(0.7)
Moneragala	9	16.42	146	(4.4)	(0.1)	2	20.16	41	(1.4)	(0.0)	187	(3.0)	(0.1)
Ratnapura	82	12.91	1,061	(31.9)	(0.6)	68	11.51	783	(26.2)	(0.5)	1,844	(29.2)	(0.6)
Ampara	0	-	0	(0.0)	(0.0)	0	-	0	(0.0)	(0.0)	0	(0.0)	(0.0)
Study Area Total	220	15.13	3,331	(100.0)	(2.0)	180	16.54	2,983	(100.0)	(1.8)	6,314	(100.0)	(1.9)
Sri Lanka Total	8,791	19.16	168,440		(100.0)	8,623	18.85	162,519		(100.0)	331,019		(100.0)
Low country vegetables													
Galle	711	12.79	9,091	(6.9)	(2.0)	546	9.85	5,384	(6.6)	(1.7)	14,475	(6.8)	(1.9)
Matara	775	11.72	9,080	(6.9)	(2.0)	628	14.05	8,824	(10.9)	(2.8)	17,904	(8.4)	(2.3)
Hambantota	2,331	33.31	77,648	(58.9)	(17.5)	2,098	21.20	44,496	(54.7)	(14.0)	122,144	(57.3)	(16.0)
Moneragala	1,627	17.57	28,592	(21.7)	(6.4)	624	22.01	13,729	(16.9)	(4.3)	42,321	(19.9)	(5.6)
Ratnapura	756	9.15	6,914	(5.2)	(1.6)	828	9.94	8,226	(10.1)	(2.6)	15,140	(7.1)	(2.0)
Ampara	26	22.63	577	(0.4)	(0.1)	25	25.78	637	(0.8)	(0.2)	1,214	(0.6)	(0.2)
Study Area Total	6,225	21.19	131,901	(100.0)	(29.7)	4,750	17.12	81,296	(100.0)	(25.6)	213,197	(100.0)	(28.0)
Sri Lanka Total	27,487	16.15	443,951		(100.0)	21,026	15.13	318,039		(100.0)	761,991		(100.0)
Tobacco													
Galle	0	-	0	(0.0)	(0.0)	0	-	0	(0.0)	(0.0)	0	(0.0)	(0.0)
Matara	0	-	0	(0.0)	(0.0)	0	-	0	(0.0)	(0.0)	0	(0.0)	(0.0)
Hambantota	32	1.26	41	(3.5)	(0.9)	16	0.75	12	(17.6)	(0.3)	53	(4.2)	(0.6)
Moneragala	1,248	0.88	1,098	(93.4)	(23.2)	0	-	0	(0.0)	(0.0)	1,098	(88.2)	(12.8)
Ratnapura	98	0.38	37	(3.1)	(0.8)	113	0.50	57	(82.4)	(1.5)	94	(7.5)	(1.1)
Ampara	0	-	0	(0.0)	(0.0)	0	-	0	(0.0)	(0.0)	0	(0.0)	(0.0)
Study Area Total	1,379	0.85	1,175	(100.0)	(24.9)	130	0.53	69	(100.0)	(1.8)	1,244	(100.0)	(14.5)
Sri Lanka Total	4,844	0.98	4,728		(100.0)	3,162	1.22	3,847		(100.0)	8,575		(100.0)
Sugar cane													
Galle	1	0.63	1	(0.0)	(0.0)				(-)	(-)	1	(0.0)	(0.0)
Matara	0	-	0	(0.0)	(0.0)				(-)	(-)	0	(0.0)	(0.0)
Hambantota	1	2.15	2	(0.0)	(0.0)				(-)	(-)	2	(0.0)	(0.0)
Moneragala	12,954	60.65	785,632	(99.3)	(49.8)				(-)	(-)	785,632	(99.3)	(49.8)
Ratnapura	111	48.92	5,446	(0.7)	(0.3)				(-)	(-)	5,446	(0.7)	(0.3)
Ampara	0	-	0	(0.0)	(0.0)				(-)	(-)	0	(0.0)	(0.0)
Study Area Total	13,067	60.54	791,080	(100.0)	(50.1)				(-)	(-)	791,080	(100.0)	(50.1)
Sri Lanka Total	23,748	66.43	1,577,481		(100.0)					(-)	1,577,481		(100.0)

Note: Unit for vegetable is '000 bushels for production, and bushels for yield.
Source: Department of Census and Statistics

Table 1.8 Cultivated Area, Production and Yield of Plantation and Minor Export Crops in Southern Area (1993)

Crop / District	Number of Divisions (No.)	Area (ha)	Yield (ton/ha)	Production (ton)	Share in Study Area (%)	Share in Sri Lanka (%)
Tea						
Galle	(16)	22,084	1.70	37,477	(50.6)	(16.6)
Matara	(14)	20,295	1.70	34,441	(46.5)	(15.3)
Hambantota	(11)	273	1.70	463	(0.6)	(0.2)
Moneragala	(6)	81	1.70	137	(0.2)	(0.1)
Ratnapura	(2)	933	1.70	1,583	(2.1)	(0.7)
Ampara	(1)	0	1.70	0	(0.0)	(0.0)
Study Area Total	(50)	43,666	1.70	74,101	(100.0)	(32.9)
Sri Lanka Total		192,524	1.17	225,360		(100.0)
Rubber						
Galle	(16)	11,409	0.66	7,530	(63.8)	(7.1)
Matara	(14)	5,425	0.66	3,581	(30.3)	(3.4)
Hambantota	(11)	24	0.66	16	(0.1)	(0.0)
Moneragala	(6)	1,006	0.66	664	(5.6)	(0.6)
Ratnapura	(2)	30	0.66	20	(0.2)	(0.0)
Ampara	(1)	0	0.66	0	(0.0)	(0.0)
Study Area Total	(50)	17,894	0.66	11,810	(100.0)	(11.1)
Sri Lanka Total		161,480	0.66	106,577		(100.0)
Coconut			('000 nuts)	('000 nuts)		
Galle	(16)	12,879	6.30	81,138	(23.2)	(3.1)
Matara	(14)	16,179	6.30	101,928	(29.1)	(3.9)
Hambantota	(11)	23,173	6.30	145,990	(41.7)	(5.6)
Moneragala	(6)	1,267	6.30	7,982	(2.3)	(0.3)
Ratnapura	(2)	1,989	6.30	12,531	(3.6)	(0.5)
Ampara	(1)	50	6.30	315	(0.1)	(0.0)
Study Area Total	(50)	55,537	6.30	349,883	(100.0)	(13.4)
Sri Lanka Total		416,000	6.30	2,620,800		(100.0)
Cinnamon						
Galle	(16)	n.a	n.a	4,900	(59.2)	(50.0)
Matara	(14)	n.a	n.a	2,500	(30.2)	(25.5)
Hambantota	(11)	n.a	n.a	700	(8.5)	(7.1)
Moneragala	(6)	n.a	n.a	0	(0.0)	(0.0)
Ratnapura	(2)	n.a	n.a	173	(2.1)	(1.8)
Ampara	(1)	n.a	n.a	0	(0.0)	(0.0)
Study Area Total	(50)	n.a	n.a	8,273	(100.0)	(84.4)
Sri Lanka Total		n.a	n.a	9,800		(100.0)
Cloves						
Galle	(16)	n.a	n.a	0	(0.0)	(0.0)
Matara	(14)	n.a	n.a	100	(100.0)	(9.1)
Hambantota	(11)	n.a	n.a	0	(0.0)	(0.0)
Moneragala	(6)	n.a	n.a	0	(0.0)	(0.0)
Ratnapura	(2)	n.a	n.a	0	(0.0)	(0.0)
Ampara	(1)	n.a	n.a	0	(0.0)	(0.0)
Study Area Total	(50)	n.a	n.a	100	(100.0)	(9.1)
Sri Lanka Total		n.a	n.a	1,100		(100.0)
Coffee						
Galle	(16)	n.a	n.a	200	(27.4)	(2.5)
Matara	(14)	n.a	n.a	300	(41.1)	(3.8)
Hambantota	(11)	n.a	n.a	200	(27.4)	(2.5)
Moneragala	(6)	n.a	n.a	15	(2.1)	(0.2)
Ratnapura	(2)	n.a	n.a	15	(2.1)	(0.2)
Ampara	(1)	n.a	n.a	0	(0.0)	(0.0)
Study Area Total	(50)	n.a	n.a	730	(100.0)	(9.2)
Sri Lanka Total		n.a	n.a	7,900		(100.0)
Cocoa						
Galle	(16)	n.a	n.a	0	(0.0)	(0.0)
Matara	(14)	n.a	n.a	0	(0.0)	(0.0)
Hambantota	(11)	n.a	n.a	0	(0.0)	(0.0)
Moneragala	(6)	n.a	n.a	72	(100.0)	(1.6)
Ratnapura	(2)	n.a	n.a	0	(0.0)	(0.0)
Ampara	(1)	n.a	n.a	0	(0.0)	(0.0)
Study Area Total	(50)	n.a	n.a	72	(100.0)	(1.6)
Sri Lanka Total		n.a	n.a	4,600		(100.0)
Total of Minor export crops (cinnamon, cloves, coffee and cocoa only) a/						
Galle	(16)	12,637	0.40	5,100	(55.6)	(21.8)
Matara	(14)	11,797	0.25	2,900	(31.6)	(12.4)
Hambantota	(11)	776	1.16	900	(9.8)	(3.8)
Moneragala	(6)	11,265	0.01	87	(0.9)	(0.4)
Ratnapura	(2)	425	0.44	188	(2.0)	(0.8)
Ampara	(1)	0	-	0	(0.0)	(0.0)
Study Area Total	(50)	36,900	0.25	9,175	(100.0)	(39.2)
Sri Lanka Total		n.a	-	23,400		(100.0)

Note: a/; Those are estimated figures by the JICA Study Team based on data from RDD (crop area) and Department of Export Agricultural Crops (production of major export crops)

Table 1.9 Existing Irrigation, Salt Water Exclusion and Flood Protection Projects in Southern Area

District	Category	Tanks		Anicuts		Total Irri. Schemes		Salt Water Exclusion Projects		Flood Prtection Projects		Total	
		Nos	Area (ha)	Nos	Area (ha)	Nos	Area (ha)	Nos	Area (ha)	Nos	Area (ha)	Nos	Area (ha)
Galle	Minor	3	51	297	4,865	300	4,916	0	0	0	0	300	4,916
	Medium	2	299	11	2,701	13	3,000	0	0	6	1,462	19	4,462
	Major	0	0	12	9,971	12	9,971	1	1,802	7	11,436	20	23,209
	Sub-total	5	350	320	17,537	325	17,887	1	1,802	13	12,898	339	32,587
Matara	Minor	19	522	698	9,989	717	10,511	0	0	0	0	717	10,511
	Medium	4	378	17	1,823	21	2,201	1	520	0	0	22	2,721
	Major	4	1,629	5	2,912	9	4,541	1	5,020	0	0	10	9,561
	Sub-total	27	2,529	720	14,724	747	17,253	2	5,540	0	0	749	22,793
Hambantota	Minor	524	6,274	30	577	554	6,851	0	0	0	0	554	6,851
	Medium	12	1,495	15	1,668	27	3,163	0	0	0	0	27	3,163
	Major	9	13,631	6	4,093	15	17,724	0	0	0	0	15	17,724
	Sub-total	545	21,400	51	6,338	596	27,738	0	0	0	0	596	27,738
Moneragala	Minor	101	3,169	76	1,630	177	4,799	0	0	0	0	177	4,799
	Medium	14	1,422	10	1,250	24	2,672	0	0	0	0	24	2,672
	Major	5	2,620	0	0	5	2,620	0	0	0	0	5	2,620
	Sub-total	120	7,211	86	2,880	206	10,091	0	0	0	0	206	10,091
Ratnapura	Minor	21	212	45	418	66	630	0	0	0	0	66	630
	Medium	0	0	0	0	0	0	0	0	0	0	0	0
	Major	0	0	0	0	0	0	0	0	0	0	0	0
	Sub-total	21	212	45	418	66	630	0	0	0	0	66	630
Ampara	Minor	13	800	0	0	13	800	0	0	0	0	13	800
	Medium	0	0	0	0	0	0	0	0	0	0	0	0
	Major	3	900	1	1,200	4	2,100	0	0	0	0	4	2,100
	Sub-total	16	1,700	1	1,200	17	2,900	0	0	0	0	17	2,900
Total	Minor	681	11,028	1,146	17,479	1,827	28,507	0	0	0	0	1,827	28,507
	Medium	32	3,594	53	7,442	85	11,036	1	520	6	1,462	92	13,018
	Major	21	18,780	24	18,176	45	36,956	2	6,822	7	11,436	54	55,214
	Sub-total	734	33,402	1,223	43,097	1,957	76,499	3	7,342	13	12,898	1,973	96,739

Source: Water Resources Inventory for Southern Area of Sri Lanka, Southern Province Development Project
Irrigation Department

Table 1.10 Planned and On-going Irrigation Rehabilitation Projects in Southern Area

Baisn	Project	Present Condition					Future Condition Proposed					Expected Annual Increment (ha)	Estimated Costs (Rs. mil.)	Present Status (as of Sep. 1996)	Data Source
		Maha Crop		Yala Crop		Total	Maha Crop		Yala Crop		Total				
		Area (ha)	Intensity (%)	Area (ha)	Intensity (%)	Area (ha)	Area (ha)	Intensity (%)	Area (ha)	Intensity (%)	Area (ha)				
Benthara Ganga	1. Deduwa SWE	200	100	200	100	400	800	100	800	100	1,600	1,200	9	F/S completed	1
	2. Rantotuwila SWE	23	100	23	100	46	780	100	780	100	1,560	1,514	7	F/S completed	1
	3. Madampe SWE	120	100	120	100	240	250	100	250	100	500	260	13	F/S completed	1
	4. Moragoda SWE	7	100	7	100	14	150	100	150	100	300	286	6	F/S completed	1
	5. Koggala SWE	70	100	70	100	140	300	100	300	100	600	460	10	F/S completed	1
	6. Benthara R.B	30	35	290	30	98	676	70	579	60	821	723	173	Rejected after M/P	2
Polwatta	1. Polwatta	336	60	224	40	291	840	100	560	100	1,400	1,109	163	Rejected after M/P	2
Gin	1. Holuwagoda	1,000	100	1,870	100	2,870	1,870	100	1,870	100	3,740	870	50	F/S completed	3
	2. Impr. of Flood Prot.	1,000	100	2,000	100	3,000	2,000	100	2,000	100	4,000	1,000	NA	Preliminary study completed	3
Niwala	1. Aparakka Ara	400	100	120	100	520	400	100	400	100	800	280	NA	Pre-F/S completed	3
	2. Kiralakele	0	0	0	0	0	300	100	300	100	600	600	NA	Pre-F/S completed	3
Kirama	1. Muruthawela L.B	1,198	70	1,016	60	1,448	1,388	82	1,142	67	1,903	455	239	F/S by JICA nearly completed	4
Urubokka	2. Urubokka	3,800	85	3,800	83	6,384	4,185	95	4,185	90	7,742	1,358	265	F/S by JICA nearly completed	4
	3. Kirama	2,221	82	2,221	65	3,265	2,644	95	2,644	80	4,627	1,362	270	F/S by JICA nearly completed	4
	4. Thangalu Welyaya	76	70	198	50	152	671	100	671	100	1,342	1,190	118	Rejected after M/P	2
Walawe	1. Liyangastota	4,756	100	4,756	90	9,036	5,007	100	5,007	100	10,014	978	682	F/S by JICA nearly completed	4
	2. Walawe Rehabilitation	2,900	100	2,900	50	4,350	4,000	100	4,000	100	8,000	3,650	1500	D/D stage with OECF fund	5
Kachigala	1. Kachigala	77	15	103	20	32	510	100	510	100	1,020	988	NA	Rejected after M/P	2
Kirindi	1. Handapangala	400	100	400	50	600	400	100	400	100	800	200	47	In progress with EU assistance	3
	2. Dambewewa	93	100	93	50	140	93	100	93	100	186	47	11	In progress with EU assistance	3
Malala	1. Badagiriya	536	78	407	59	658	686	100	481	70	1,023	364	130	F/S by JICA nearly completed	4
	2. Maha Wewa	100	100	100	0	100	100	100	100	0	100	0		In progress under NIRP	3
Menik	1. Yudaganawa	162	100	162	0	162	162	100	162	50	243	81	15	In progress with EU assistance	3
	2. Kukurampola	190	50	190	0	95	190	100	190	50	285	190		In progress under NIRP	3
Kumbukkar	1. Kunbukkana	685	100	685	0	685	685	100	685	50	1,028	343	43	In progress with EU assistance	3
Wila Oya	1. Ehimole	439	100	439	50	659	439	100	439	50	659	0	30	In progress with EU assistance	3
	2. Kotiyagala	213	100	213	0	213	213	100	213	100	426	213	14.5	In progress with EU assistance	3
Total		21,032		22,607		35,598	29,739		28,911		55,318	19,720			

Source:

1. Study on Solt Water Exclusion and Drainage Schemes, Final Report, Volume II, University of Moratuwa, Katubedda, Jun. 1995.
2. The Feasibility Study on the Rehabilitation of Irrigation and Drainage Systems in the River Basins of Southern of Sri Lanka, Interim Report, 1995, JICA
3. Reports from Irrigation Department.
4. The Feasibility Study on the Rehabilitation of Irrigation and Drainage Systems in the River Basins of Southern of Sri Lanka, Draft Final Report, Jul. 1996, JICA
5. Walawe Left Bank Irrigation Upgrading and Extension Project, Aug. 1995, Mahaweli Authority.

Table 1.11 Proposed In-basin New Irrigation Development in Southern Area

Basin	Project	Future Condition Proposed					Estimated Costs (Rs. mil.)	Present Status	Data Source
		Maha Crop		Yala Crop		Total Area (ha)			
		Area (ha)	Intensity (%)	Area (ha)	Intensity (%)				
Walawe	1. Walawe L.B	5,340	100	5,340	100	10,680	5,000	Preparation for D/D	1
	2. Ranawara Palessa	20	100	20	100	40	2	Pre-F/S completed	2
Malala	1. Kedumkada Ara	120	100	120	50	180	15	Pre-F/S completed	2
	2. Bagamuwa	80	100	320	50	240	12	Pre-F/S completed	2
Menik	1. Maha Gal Amuna	320	100	320	50	480	90	Pre-F/S completed	2
	2. Maha Dambe	40	100	40	50	60	4	Pre-F/S completed	2
	3. Wilambe	100	100	250	50	225	2	Pre-F/S completed	2
	4. Kadawara	80	100	100	50	130	12	Pre-F/S completed	2
Kumbukkar	1. Maila	80	100	80	50	120	18	Pre-F/S completed	2
	2. Niyadellegama	80	100	80	50	120	10	Pre-F/S completed	2
	3. Bindunukada	300	100	130	100	430	80	Pre-F/S completed	2
	4. Muduwa Wewa	120	100	40	100	160	20	Pre-F/S completed	2
	5. Sengal Wewa	120	100	40	100	160	20	Pre-F/S completed	2
	6. Kumbukgas Ara	300	100	750	50	675	50	Pre-F/S completed	2
Karanda	1. Sugala Devi	300	100	300	100	600	100	Pre-F/S completed	2
	2. Meeyaketu Ara	80	100	80	50	120	18	Pre-F/S completed	2
	3. Heenhela	100	100	100	50	150	31	Pre-F/S completed	2
Heda Oya	1. Kolombana	40	100	40	50	60	4	Pre-F/S completed	2
	2. Ela Linda	40	100	40	50	60	9	Pre-F/S completed	2
Total		7,660		8,190		14,690	5,497		

Source:

1. Walawe Left Bank Irrigation Upgrading and Extension Project, Aug. 1995, Mahaweli Authority.
2. Rehabilitation of Tanks for New Irrigation Development in Moneragala District, Mar. 1995

Table 1.12 Planned and On-going River Diversion Projects in Southern Area

River Diversion Project		Annual Diversion (MCM)	Present Condition: Maha Crop Area (ha)	Maha Crop Intensity (%)	Yala Crop Area (ha)	Yala Crop Intensity (%)	Total Area (ha)	Future Condition Proposed: Maha Crop Area (ha)	Maha Crop Intensity (%)	Yala Crop Area (ha)	Yala Crop Intensity (%)	Total Area (ha)	Expected Annual Increment (ha)	Estimated Costs (Rs. mil.)	Present Status	Data Source
Gin-Nilwala	Kirama Urubokka	400	0	0	0	0	0	5,400	100	5,400	100	10,800	10,800	8,000	Preliminary Stuc completed	4
Nilwala	Muruthawel	250	6,000	100	6,000	0	6,000	6,000	100	6,000	100	12,000	6,000	1,350	Pre-F/S complet	1
Uma Oya	Kirindi Oya	180	0	0	0	0	0	4,000	100	4,000	100	8,000	8,000	10,000	Pre-F/S complet	1
			1,350	100	1,350	0	1,350	1,350	100	1,350	100	2,700	1,350			
Walawe (Weli Oya Diversion)	Mau Ara	21	0	0	0	0	0	400	100	400	100	800	800	374	In progress	5
			800	80	800	0	640	800	100	800	100	1,600	960			
Mau Ara	Malala Ara	40	1,500	70	1,500	0	1,050	1,500	100	1,500	100	3,000	1,950	150	F/S completed	1&3
Menik Ganga	Kirindi Oya	58	5,400	100	5,400	0	5,400	5,400	100	5,400	100	10,800	5,400	550	F/S completed	2
Ganga			0	0	0	0	0	2,100	100	2,100	100	4,200	4,200			
Total		949	15,050		15,050		14,440	26,950		26,950		53,900	39,460	20,424		

Source:

1. Project Pipeline - Department of National Planning - 1996
2. Menik Ganga Diversion Project - Feasibility Study- CECB, March 1991
3. EIA Stdy, Augmantation of Malala Oya basin from Mau Ara, Institute of Fundamental Studies, 1992
4. CECB reports
5. Preliminary Report prepared by ID,1995

Table 1.13 Livestock Population by District Related to Southern Area (1993)

	Neat Cattle		Buffaloe		Goat		Sheep		Population* Distribution
	(No.)	(%)	(No.)	(%)	(No.)	(%)	(No.)	(%)	(%)
Galle	27,500	(1.6)	11,700	(1.4)	9,400	(1.6)	0	(0.0)	(5.4)
Matara	33,500	(2.0)	11,000	(1.3)	3,600	(0.6)	0	(0.0)	(4.3)
Hambantota	93,300	(5.4)	95,900	(11.5)	13,900	(2.4)	100	(0.5)	(2.9)
Moneragala	59,500	(3.5)	29,400	(3.5)	5,400	(0.9)	0	(0.0)	(2.1)
Ratnapura	34,900	(2.0)	15,700	(1.9)	33,400	(5.7)	0	(0.0)	(5.2)
Ampara	106,400	(6.2)	58,700	(7.1)	14,700	(2.5)	0	(0.0)	(2.8)
6 Districts total	355,100	(20.7)	222,400	(26.8)	80,400	(13.8)	100	(0.5)	(22.7)
Sri Lanka total	1,715,800	(100.0)	831,360	(100.0)	582,600	(100.0)	19,500	(100.0)	(100.0)

	Pigs		Poultry		Ducks		Population* Distribution
	(No.)	(%)	(No.)	(%)	(No.)	(%)	(%)
Galle	500	(0.6)	290,300	(3.1)	300	(1.6)	(5.4)
Matara	200	(0.2)	163,300	(1.8)	100	(0.5)	(4.3)
Hambantota	2,100	(2.3)	105,600	(1.1)	100	(0.5)	(2.9)
Moneragala	100	(0.1)	84,000	(0.9)	0	(0.0)	(2.1)
Ratnapura	4,200	(4.7)	217,300	(2.3)	100	(0.5)	(5.2)
Ampara	300	(0.3)	261,000	(2.8)	1,200	(6.3)	(2.8)
6 Districts total	7,400	(8.2)	1,121,500	(12.1)	1,800	(9.5)	(22.7)
Sri Lanka total	90,100	(100.0)	9,263,400	(100.0)	18,900	(100.0)	(100.0)

* : Distribution of human population In 1994

[ ]: Share of livestock population exceeds that of human population.

Source: Livestock data, Department of Animal Production and Health, 1995

Table 1.14 Livestock Production in Southern Area (1993) (1/2)

Milk	Number of			Annual Production		
District	Divisions (No.)	Milk at Present (head)	Ave. Daily Pro. per Cow (lit.)	Production ('000 lit.)	Share in Study Area (%)	Share in Sri Lanka (%)
(1) Cow milk						
Galle	(16)	7,300	1.91	5,101	(22.6)	(2.1)
Matara	(14)	8,000	1.63	4,763	(21.1)	(1.9)
Hambantota	(11)	19,700	1.24	8,894	(39.5)	(3.6)
Moneragala a/	(6)	6,976	1.09	2,778	(12.3)	(1.1)
Ratnapura a/	(2)	1,136	1.99	827	(3.7)	(0.3)
Ampara a/	(1)	302	1.50	166	(0.7)	(0.1)
Study Area Total	(50)	43,414	1.42	22,529	(100.0)	(9.2)
Sri Lanka Total		344,300	1.95	244,656		(100.0)
(2) Buffaloe Milk						
Galle	(16)	2,700	2.21	2,178	(13.0)	(2.9)
Matara	(14)	2,500	1.95	1,780	(10.6)	(2.4)
Hambantota	(11)	14,900	1.85	10,046	(59.8)	(13.4)
Moneragala a/	(6)	4,608	1.38	2,317	(13.8)	(3.1)
Ratnapura a/	(2)	384	2.54	356	(2.1)	(0.5)
Ampara a/	(1)	176	2.00	129	(0.8)	(0.2)
Study Area Total	(50)	25,268	1.82	16,805	(100.0)	(22.3)
Sri Lanka Total		114,900	1.79	75,219		(100.0)
(3) Total Milk						
Galle	(16)	10,000	1.99	7,279	(18.5)	(2.3)
Matara	(14)	10,500	1.71	6,543	(16.6)	(2.0)
Hambantota	(11)	34,600	1.50	18,940	(48.2)	(5.9)
Moneragala a/	(6)	11,584	1.20	5,095	(13.0)	(1.6)
Ratnapura a/	(2)	1,520	2.13	1,183	(3.0)	(0.4)
Ampara a/	(1)	479	1.68	294	(0.7)	(0.1)
Study Area Total	(50)	68,683	1.57	39,334	(100.0)	(12.3)
Sri Lanka Total		459,200	1.91	319,875		(100.0)

Cattle meat				Annual Production		
District		Neat Cattle (Head)	Slaughtered (Head)	Production b/ (ton)	Share in Study Area (%)	Share in Sri Lanka (%)
Galle	(16)	27,500	1,600	109	(12.5)	(0.1)
Matara	(14)	33,500	4,615	314	(36.1)	(0.3)
Hambantota	(11)	93,300	3,588	244	(28.0)	(0.2)
Moneragala a/	(6)	38,080	1,935	132	(15.1)	(0.1)
Ratnapura a/	(2)	5,584	852	58	(6.7)	(0.0)
Ampara a/	(1)	1,490	204	14	(1.6)	(0.0)
Study Area Total	(50)	199,454	12,794	870	(100.0)	(0.7)
Sri Lanka Total		1,715,800	179,413	122,001		(100.0)

Goat & sheep meat				Annual Production		
District		Goat/sheep Population (Head)	Goat/sheep Slaughtered	Production (ton)	Share in Study Area (%)	Share in Sri Lanka (%)
Galle	(16)	9,400	1,551	16	(24.8)	(1.6)
Matara	(14)	3,600	594	6	(9.5)	(0.6)
Hambantota	(11)	14,000	2,310	23	(37.0)	(2.3)
Moneragala a/	(6)	3,456	570	6	(9.1)	(0.6)
Ratnapura a/	(2)	5,344	882	9	(14.1)	(0.9)
Ampara a/	(1)	2,058	340	3	(5.4)	(0.3)
Study Area Total	(50)	37,858	6,247	62	(100.0)	(6.3)
Sri Lanka Total		602,100	99,347	993		(100.0)

Table 1.14 Livestock Production in Southern Area (1993) (2/2)

Pork meat				Annual Production		
District		Pigs Population (Head)	Pigs Slaughtered (Head)	Production (ton)	Share in Study Area (%)	Share in Sri Lanka (%)
Galle	(16)	500	183	7	(14.0)	(0.6)
Matara	(14)	200	73	3	(5.6)	(0.2)
Hambantota	(11)	2,100	767	28	(58.7)	(2.3)
Moneragala a/	(6)	64	23	1	(1.8)	(0.1)
Ratnapura a/	(2)	672	245	9	(18.8)	(0.7)
Ampara a/	(1)	42	15	1	(1.2)	(0.0)
Study Area Total	(50)	3,578	1,306	47	(100.0)	(4.0)
Sri Lanka Total		90,100	32,887	1,184		(100.0)

Eggs			Annual Production		
District		Poultry (Head)	Production ('000 No.)	Share in Study Area (%)	Share in Sri Lanka (%)
Galle	(16)	290,300	3,044	(49.2)	(4.3)
Matara	(14)	163,300	1,547	(25.0)	(2.2)
Hambantota	(11)	105,600	926	(15.0)	(1.3)
Moneragala a/	(6)	53,760	388	(6.3)	(0.5)
Ratnapura a/	(2)	34,770	274	(4.4)	(0.4)
Ampara a/	(1)	3,650	13	(0.2)	(0.0)
Study Area Total	(50)	651,380	6,192	(100.0)	(8.7)
Sri Lanka Total		9,263,400	71,402		(100.0)

Chicken meat			Annual Production		
District		Poultry (Head)	Production c/ (ton)	Share in Study Area (%)	Share in Sri Lanka (%)
Galle	(16)	290,300	1,036.2	(44.6)	(3.1)
Matara	(14)	163,300	582.9	(25.1)	(1.8)
Hambantota	(11)	105,600	376.9	(16.2)	(1.1)
Moneragala a/	(6)	53,760	191.9	(8.3)	(0.6)
Ratnapura a/	(2)	34,770	124.1	(5.3)	(0.4)
Ampara a/	(1)	3,650	13.0	(0.6)	(0.0)
Study Area Total	(50)	651,380	2,325.0	(100.0)	(7.0)
Sri Lanka Total		9,263,400	33,064.3		(100.0)

Note: a: The figures in these districts are estimated based on the ratio of population in the Study area districts.
b/: Production of cattle meat is estimated based on the assumption:
1) Meat adult live-weight = 200 kg
2) Dressingout percentage (carcass) = 34%
c/: This figure is estimated based on assumptions; (i) of the total chicken, 45% are commercial flock, 45% are village flock and 10% are layer, (ii) commercial flock produced 5 times a year and average dressed weight is 1.2 kg per chicken, (iii) village flock produced 1 time a year with 1.6 kg per chicken dressed weight, and (iv) layer produced 1 time a year with 1.5 kg per chicken dressed weight.

Source: Department of Census and Statistics for egg and meat
Department of Animal Production and Health for milk
Department of Census and Statistics, "Food Balance Sheet 1993"

Table 1.15 Estimated Cultivation Area for Major Crops in Southern Area (as of 1995)

	Assumptions/ Adjustments	Galle (ha)	Matara (ha)	Sub-total (ha)	(%)	Hambantota (ha)	Mo'gala (ha)	Ratnapura (ha)	Ampara (ha)	Sub-total (ha)	(%)	Total (ha)	(%)
1. Tea													
a. GIS Land use (1995)		15,302	19,415	34,747	(91.1)	74	39	1,421	0	1,534	(132.4)	36,281	(92.3)
b. Secondary data (1993)		22,084	20,395	42,379	(111.1)	273	81	933	0	1,287	(111.1)	43,666	(111.1)
c. Adjusted (as 1995)	(90% of 1b)	19,876	18,366	38,141	(100.0)	246	73	840	0	1,158	(100.0)	39,299	(100.0)
2. Rubber													
a. GIS Land use (1995)		14,515	6,426	20,941	(125.0)	604	2,262	401	0	3,267	(125.0)	24,208	(125.0)
b. Secondary data (1993)		11,409	5,425	16,834	(100.5)	24	1,006	30	0	1,060	(40.6)	17,894	(92.4)
c. Adjusted (as 1995)	(80% of 2a)	11,612	5,141	16,753	(100.0)	483	1,810	321	0	2,614	(100.0)	19,366	(100.0)
3. Coconut													
a. GIS Land use (1995)		2,367	5,289	7,656	(28.5)	9,153	118	122	0	9,393	(35.1)	17,049	(32.3)
b. Secondary data (1993)		12,879	16,179	29,058	(108.3)	23,173	1,267	1,989	50	26,479	(101.8)	55,537	(105.1)
c. Adjusted (as 1995)	(3a + 8c + 9c)	12,611	14,217	26,828	(100.0)	17,086	5,406	3,036	493	26,020	(100.0)	52,848	(100.0)
4. Cinnamon (inc. other minor export crops)													
a. GIS Land use (1995)		6,534	2,646	9,180	(40.1)	0	0	0	0	0	(0.0)	9,180	(26.3)
b. Secondary data (1990/91)		12,637	11,797	24,434	(106.8)	776	11,265	425	0	12,466	(103.1)	36,900	(105.5)
c. Adjusted (as 1995)	(4a + 8d + 9d)	13,910	8,967	22,877	(100.0)	5,690	3,862	2,166	370	12,088	(100.0)	34,965	(100.0)
5. Fruits trees													
a. GIS Land use (1995)		0	0	0	(0.0)	0	0	0	0	0	(0.0)	0	(0.0)
b. Secondary data (1993)		3,088	3,312	6,400	(101.6)	6,049	4,307	724	29	11,109	(97.2)	17,509	(98.8)
c. Adjusted (as 1995)	(3a + 8c + 9c)	3,319	2,978	6,297	(100.0)	5,412	3,645	2,029	345	11,430	(100.0)	17,727	(100.0)
6. Sugar cane													
a. GIS Land use (1995)		-	-	-	-	-	-	-	-	-	-	-	-
b. Secondary data (1993)		0	0	0	-	0	12,954	111	0	13,065	-	13,065	-
c. Adjusted (as 1995)	(100% of 6b)	0	0	0	-	0	12,954	111	0	13,065	-	13,065	-
7. Total perennial crop Area													
a. GIS Land use		38,718	33,806	72,524	(65.4)	9,831	2,419	1,944	0	14,194	(21.4)	86,718	(48.9)
b. Secondary data		62,097	57,008	119,105	(107.4)	30,295	30,880	4,212	79	65,466	(98.6)	184,571	(104.1)
c. Adjusted (as 1995)		61,328	49,568	110,896	(100.0)	28,917	27,749	8,502	1,207	66,376	(100.0)	177,271	(100.0)
Assumptions for Adjustment													
8. Mixed Tree/Other Perennial	(Wet Z.)	(Dry Z.)											
a. GIS Land use	1.00	1.00	3,068	3,747	6,815	-	943	377	71	0	1,391	-	8,206	-
b. Secondary data			-	-	-	-	-	-	-	-	-	-	-	-
c. Adjusted for Coconut	0.40	0.50	1,227	1,499	2,726	-	472	189	36	0	696	-	3,422	-
d. Adjusted for Cinnamon	0.20	0.10	614	749	1,363	-	94	38	7	0	139	-	1,502	-
e. Adjusted for Fruits	0.20	0.20	614	749	1,363	-	189	75	14	0	278	-	1,641	-
f. Adjusted for non crop	0.20	0.20	614	749	1,363	-	189	75	14	0	278	-	1,641	-
9. Homesteads	(Wet Z.)	(Dry Z.)												
a. GIS Land use	1.00	1.00	45,085	37,144	82,229	-	37,307	25,496	14,392	2,464	79,659	-	161,888	-
b. Secondary data			-	-	-	-	-	-	-	-	-	-	-	-
c. Adjusted for Coconut	0.20	0.20	9,017	7,429	16,446	-	7,461	5,099	2,878	493	15,932	-	32,378	-
d. Adjusted for Cinnamon	0.15	0.15	6,763	5,572	12,334	-	5,596	3,824	2,159	370	11,949	-	24,283	-
e. Adjusted for Fruits	0.06	0.14	2,705	2,229	4,934	-	5,223	3,569	2,015	345	11,152	-	16,086	-
f. Adjusted for non crop	0.59	0.49	26,600	21,915	48,515	-	18,280	12,493	7,052	1,207	39,033	-	87,548	-
10. Paddy														
a. GIS Land use			27,156	18,189	45,345	(153.8)	44,663	14,576	6,674	1,402	67,315	(153.8)	112,660	(153.8)
b. S. data (1989-93 Maha ave.)			15,200	14,900	30,100	(102.1)	18,200	6,848	2,144	456	27,648	(63.2)	57,748	(78.9)
c. Adjusted as net of Maha	(65% of 10a)		17,651	11,823	29,474	(100.0)	29,031	9,474	4,338	911	43,755	(100.0)	73,229	(100.0)
d. Ajusted as net of Yala			12,886	9,340	22,226	(75.4)	17,128	2,179	3,644	839	23,781	(54.3)	46,006	(62.8)
(Statistic Maha:Yala ratio)			(73.0)	(79.0)			(59.0)	(23.0)	(84.0)	(91.0)				

Source: GIS information, JICA Study Team and secondary data from Department of Census and Statistic

Table 1.16 Budgets of Agricultural Crops in Southern Area in 1995

District / Crop		Gross Value: Yield (ton/ha)	Gross Value: Unit Price (Rs./kg)	Gross Value: Gross Value (Rs/ha)	Production Cost: Cost Percentage (%)	Production Cost: Production Cost (Rs/ha)	Net Return (Rs/ha)	Labor Cost: Cost Percentage (%)	Labor Cost: Labor Cost (Rs/ha)	Labor Cost: Labor Require. (MD/ha)	Value Added (Rs/ha)
Galle											
1) Paddy	Maha	2.70	9.96	26,892	90	24,203	2,689	70	16,942	169	19,631
	Yala	1.89	9.96	21,613	90	19,452	2,161	70	13,616	136	15,778
2) Kurakkan	Maha	-	10.61	0	70	0	0	60	0	0	0
	Yala	-	10.61	0	70	0	0	60	0	0	0
3) Maize	Maha	-	6.39	0	70	0	0	60	0	0	0
	Yala	-	6.39	0	70	0	0	60	0	0	0
4) Green gram	Maha	-	28.57	0	80	0	0	45	0	0	0
	Yala	-	28.57	0	80	0	0	45	0	0	0
5) Cowpea	Maha	-	20.93	0	80	0	0	45	0	0	0
	Yala	-	20.93	0	80	0	0	45	0	0	0
6) Manioc	Maha	5.69	5.36	30,512	80	24,410	6,102	60	14,646	146	20,748
	Yala	4.25	5.36	22,806	80	18,244	4,561	60	10,947	109	15,508
7) Sweet potatos	Maha	4.95	9.75	48,229	80	38,583	9,646	60	23,150	232	32,796
	Yala	3.73	9.75	36,334	80	29,067	7,267	60	17,440	174	24,707
8) Red onion	Maha	-	27.41	0	50	0	0	30	0	0	0
	Yala	-	27.41	0	50	0	0	30	0	0	0
9) Gingelly	Maha	-	24.50	0	70	0	0	45	0	0	0
	Yala	-	24.50	0	70	0	0	45	0	0	0
10) Groundnut	Maha	-	26.40	0	70	0	0	50	0	0	0
	Yala	-	26.40	0	70	0	0	50	0	0	0
11) Chillies	Maha	1.48	24.72	36,681	65	23,843	12,838	30	7,153	72	19,991
	Yala	1.50	24.72	37,080	65	24,102	12,978	30	7,231	72	20,209
12) Vegetables	Maha	25.00	5.86	146,500	65	95,225	51,275	30	28,568	286	79,843
	Yala	25.00	5.86	146,500	65	95,225	51,275	30	28,568	286	79,843
13) Tobacco	Maha	-	69.21	0	80	0	0	65	0	0	0
	Yala	-	69.21	0	80	0	0	65	0	0	0
14) Tea (green leaves)		5.24	10.00	52,400	75	39,300	13,100	60	23,580	236	36,680
15) Rubber		0.66	58.00	38,280	80	30,624	7,656	76	23,274	233	30,930
16) Coconut		6.30	5.69	35,847	40	14,339	21,508	20	2,868	29	24,376
17) Sugar cane		-	1.00	0	80	0	0	40	0	0	0
18) Banana		13.95	10.00	139,500	55	76,725	62,775	15	11,509	115	74,284
19) Cashew		0.80	30.00	24,000	55	13,200	10,800	47	6,204	62	17,004
20) Fruits a/		23.99	5.00	119,950	45	53,978	65,973	20	10,796	108	76,768
21) Minor Ex. Crop b/		0.53	168.61	89,363	45	40,213	49,150	21	8,445	84	57,595

Note: a/; Mangoe is assumed as fruits.
b/; Cinnamon is assumed as minor export crop.

Source: Area and yield are estimated based on data from Department of Census and Statistics and Agrarian Research and Training Insutute.
Unit price is estimated based on "Price and Wage Statistics, 1992/93, Central Bank of Sri Lanka" together with information obtained at the field.
Costs for production including labor input are estimated by the JICA Study Team.

Table 1.17 Estimated Value Added from Agricultural Crops in Southern Area in 1995

District / Crop		Gross Production Value: Area (ha)	Yield (ton/ha)	Production ('000 tons)	Unit Price (Rs./kg)	Gross Value (Rs. '000)	Production Cost: Cost without Labour (Rs' 000)	Labour Cost (Rs' 000)	Production Cost (Rs' 000)	Net Production Value (Rs' 000)	Value-Added (Rs' 000)	Labor Requirement ('000 MD)
Southern Area, Total or Average												
1) Paddy	Maha	73,228	3.53	258,253	9.96	2,572,199	694,494	1,620,485	2,314,979	257,220	1,877,705	16,205
	Yala	46,006	3.17	145,818	9.96	1,452,346	392,133	914,978	1,307,111	145,235	1,060,213	9,150
2) Kurakkan	Maha	1,955	0.91	1,784	10.61	18,928	5,300	7,950	13,250	5,678	13,628	79
	Yala	474	0.70	334	10.61	3,544	992	1,488	2,481	1,063	2,551	15
3) Maize	Maha	4,138	0.98	4,039	6.39	25,809	7,227	10,840	18,066	7,743	18,583	108
	Yala	246	0.96	236	6.39	1,510	423	634	1,057	453	1,087	6
4) Green gram	Maha	7,420	1.08	7,977	28.57	227,891	100,272	82,041	182,313	45,578	127,619	820
	Yala	1,988	0.82	1,630	28.57	46,557	20,485	16,760	37,245	9,311	26,072	168
5) Cowpea	Maha	3,518	1.10	3,871	20.93	81,030	35,653	29,171	64,824	16,206	45,377	292
	Yala	731	1.22	889	20.93	18,607	8,187	6,698	14,885	3,721	10,420	67
6) Manioc	Maha	3,551	7.91	28,091	5.36	150,568	48,182	72,273	120,454	30,114	102,386	723
	Yala	2,451	7.17	17,580	5.36	94,229	30,153	45,230	75,383	18,846	64,076	452
7) Sweet potatos	Maha	1,122	5.85	6,561	9.75	63,970	20,470	30,705	51,176	12,794	43,499	307
	Yala	881	6.49	5,720	9.75	55,770	17,846	26,770	44,616	11,154	37,924	268
8) Red onion	Maha	723	6.37	4,604	27.41	126,196	44,168	18,929	63,098	63,098	82,027	189
	Yala	250	4.62	1,155	27.41	31,659	11,080	4,749	15,829	15,829	20,578	47
9) Gingelly	Maha	1,012	0.65	658	24.50	16,112	6,203	5,075	11,278	4,834	9,909	51
	Yala	571	0.85	484	24.50	11,846	4,561	3,732	8,293	3,554	7,286	37
10) Groundnut	Maha	2,436	0.43	1,044	26.40	27,574	9,651	9,651	19,302	8,272	17,923	97
	Yala	868	0.59	511	26.40	13,496	4,724	4,724	9,447	4,049	8,773	47
11) Chillies	Maha	1,832	2.56	4,691	24.72	115,968	52,765	22,614	75,379	40,589	63,203	226
	Yala	1,398	1.84	2,567	24.72	63,467	28,878	12,376	41,254	22,213	34,590	124
12) Vegetables	Maha	6,446	25.00	161,150	5.86	944,339	429,674	184,146	613,820	330,519	514,665	1,841
	Yala	4,929	25.00	122,225	5.86	722,099	328,555	140,809	469,364	252,734	393,544	1,408
13) Tobacco	Maha	1,378	0.85	1,176	69.21	81,391	22,789	42,323	65,113	16,278	58,601	423
	Yala	129	0.53	69	69.21	4,775	1,337	2,483	3,820	955	3,438	25
14) Tea (green leaves)		39,301	5.24	205,937	10.00	2,059,372	617,812	926,718	1,544,529	514,843	1,441,561	9,267
15) Rubber		19,367	0.66	12,783	58.00	741,404	142,350	450,774	593,123	148,281	599,054	4,508
16) Coconut		52,849	6.30	332,949	5.69	1,894,482	606,234	151,559	757,793	1,136,689	1,288,248	1,516
17) Sugar cane		13,065	60.55	791,078	1.00	791,078	379,717	253,145	632,862	158,216	411,361	2,531
18) Banana		8,631	15.39	132,862	10.00	1,328,624	621,132	109,611	730,743	597,881	707,492	1,096
19) Cashew		2,610	0.80	2,088	30.00	62,638	18,259	16,192	34,451	28,187	44,379	162
20) Fruits a/		17,728	23.99	425,295	5.00	2,126,474	765,530	191,383	956,913	1,169,560	1,360,943	1,914
21) Minor Ex. Crop b/		34,965	0.52	18,118	168.61	3,054,896	1,086,016	288,688	1,374,703	1,680,193	1,968,881	2,887
Total		358,196				19,030,847	6,563,253	5,705,703	12,268,957	6,761,890	12,467,593	57,057
Summary												
Paddy		119,234				4,024,545	1,086,627	2,535,463	3,622,091	402,455	2,937,918	25,355
Other field crops		50,447				2,947,334	1,239,577	782,172	2,021,748	925,586	1,707,757	7,822
Plantation crops		111,517				4,695,258	1,366,395	1,529,050	2,895,445	1,799,813	3,328,863	15,290
Minor ex. crops		34,965				3,054,896	1,086,016	288,688	1,374,703	1,680,193	1,968,881	2,887
Other perennial		42,033				4,308,813	1,784,638	570,331	2,354,969	1,953,844	2,524,175	5,703
										Estimated employment (prn):		259,350

Note: a/; Mangoe is assumed as a representative fruit.
b/; Cinnamon is assumed as a representative.

Source: Area and yield are estimated based on data from Department of Census and Statistics and Agrarian Research and Training Institute.
Unit price is estimated based on "Price and Wage Statistics, 1992/93, Central Bank of Sri Lanka" together with information obtained at the field.
Costs for production including labor input are estimated by the JICA Study Team.

Table 1.18 Estimated Value-added from Livestock and Poultry in Southern Area in 1995

Milk	Milk at Present (head)	Ave Daily Pro per Caw (lit.)	Annual Production ('000 lit.)	Price of Product (Rs/lit.)	Gross Value (Rs. '000)
(1) Caw Milk					
Wet zone	15,300	1.77	9,865	11.00	108,512
Dry & Inter. zone	28,114	1.23	12,664	11.00	139,308
Southern Area Total	43,414	1.42	22,529	11.00	247,820
(2) Buffaloe Milk					
Wet zone	5,200	2.09	3,958	12.40	49,077
Dry & Inter. zone	20,068	1.75	12,848	12.40	159,309
Southern Area Total	25,268	1.82	16,805	12.40	208,386
(3) Total Milk					
Wet zone	20,500	1.85	13,823		157,589
Dry & Inter. zone	48,183	1.45	25,512		298,617
Southern Area Total	68,683	1.57	39,334		456,206

Cattle meat	Meat Cattle (head)	Slaughtered (head)	Annual Production (ton)	Value-added of Cattle and Buffaloe: Total of Cattle and Buffaloe — Price of Product (Rs/kg)	Gross Value (Rs. '000)	Production Cost — Gross Value (Rs. '000)	Production Cost — Cost Percentage (%)	Production Cost — Production Cost (Rs. '000)	Net Return (Rs. '000)	Labor Cost — Cost Percentage (%)	Labor Cost — Labor Cost (Rs. '000)	Labor Cost — Labor Require. ('000 MD)	Value Added (Rs. '000)
Wet zone	61,000	6,215	423	66	27,893	185,482	50	92,741	92,741	80	74,193	742	166,934
Dry & Inter. zone	138,454	6,579	447	66	29,528	328,146	50	164,073	164,073	80	131,258	1,313	295,331
Southern Area Total	199,454	12,794	870	66	57,421	513,627	50	256,814	256,814	80	205,451	2,055	462,265

Goat & sheep meat	Goat/sheep Population (head)	Goat/sheep Slaughtered (head)	Annual Production (ton)	Value-added from Goat & Sheep: Price of Product (Rs/kg)	Gross Value (Rs. '000)	Production Cost — Cost Percentage (%)	Production Cost — Production Cost (Rs. '000)	Net Return (Rs. '000)	Labor Cost — Cost Percentage (%)	Labor Cost — Labor Cost (Rs. '000)	Labor Cost — Labor Require. ('000 MD)	Value Added (Rs. '000)
Wet zone	13,000	2,145	21	120	2,574	50	1,287	1,287	80	1,030	10	2,317
Dry & Inter. zone	24,858	4,102	41	120	4,922	50	2,461	2,461	80	1,969	20	4,430
Southern Area Total	37,858	6,247	62	120	7,496	50	3,748	3,748	80	2,998	30	6,746

Pork meat	Pigs Population (head)	Pigs Slaughtered (head)	Annual Production (ton)	Value-added from Pork: Price of Product (Rs/kg)	Gross Value (Rs. '000)	Production Cost — Cost Percentage (%)	Production Cost — Production Cost (Rs. '000)	Net Return (Rs. '000)	Labor Cost — Cost Percentage (%)	Labor Cost — Labor Cost (Rs. '000)	Labor Cost — Labor Require. ('000 MD)	Value Added (Rs. '000)
Wet zone	700	256	9	60	552	50	276	276	80	221	2	497
Dry & Inter. zone	2,878	1,050	38	60	2,269	50	1,135	1,135	80	908	9	2,042
Southern Area Total	3,578	1,306	47	60	2,821	50	1,410	1,410	80	1,128	11	2,539

Eggs	Poultry (head)	Annual Production ('000 No.)	Price of Product (Rs/kg)	Gross Value (Rs. '000)
Wet zone	453,600	4,591	272	12,488
Dry & Inter. zone	197,780	1,601	272	4,354
Southern Area Total	651,380	6,192	272	16,842

Chicken meat	Poultry (head)	Annual Production (ton)	Value-added from Poultry: Price of Product (Rs/kg)	Gross Value (Rs. '000)	Total GV Poultry (egg-meat) (Rs. '000)	Production Cost — Cost Percentage (%)	Production Cost — Production Cost (Rs. '000)	Net Return (Rs. '000)	Labor Cost — Cost Percentage (%)	Labor Cost — Labor Cost (Rs. '000)	Labor Cost — Labor Require. ('000 MD)	Value Added (Rs. '000)
Wet zone	453,600	1,619	90	145,710	158,198	60	94,919	63,279	30	28,476	285	91,755
Dry & Inter. zone	197,780	706	90	63,540	67,894	60	40,737	27,158	30	12,221	122	39,379
Southern Area Total	651,380	2,325	90	209,250	226,092	60	135,655	90,437	30	40,697	407	131,133

Total												
Wet zone				346,806			189,223	157,583		103,919	1,039	261,502
Dry & Inter. zone				403,231			208,405	194,826		146,356	1,464	341,181
Southern Area Total				750,036			397,627	352,409		250,274	2,503	602,683
									Estimated employment (pm):		11,376	

Source: Department of Census and Statistics
Department of Animal Production and Health

Table 2.1 Available Lands for New Agricultural Development in Southern Area

	Wet Zone						Dry and Intermediate Zones											
	Gale		Matara		Sub-total		Hambantota		Moneragala		Ratnapura		Ampara		Sub-total		Total	
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
Gross Area a/																		
3b Prime lowland	1,170	(7.0)	371	(2.7)	1,541	(5.1)	9,452	(12.9)	22,614	(17.4)	72	(0.3)	2,608	(43.5)	34,746	(14.9)	36,287	(13.8)
4b Prime upland	0	(0.0)	0	(0.0)	0	(0.0)	48,264	(65.7)	99,224	(76.5)	7,005	(29.2)	3,392	(56.5)	157,885	(67.7)	157,885	(59.9)
5b Marginal upland	15,635	(93.0)	13,159	(97.3)	28,794	(94.9)	15,726	(21.4)	7,809	(6.0)	16,932	(70.5)	0	(0.0)	40,467	(17.4)	69,261	(26.3)
Total	16,805	(100.0)	13,530	(100.0)	30,335	(100.0)	73,442	(100.0)	129,647	(99.9)	24,009	(100.0)	6,000	(100.0)	233,098	(100.0)	263,433	(100.0)
Net Area b/																		
3b Prime lowland	761	(6.1)	241	(2.4)	1,002	(4.4)	6,144	(11.3)	14,699	(15.5)	47	(0.3)	1,695	(40.0)	22,585	(13.2)	23,587	(12.2)
4b Prime upland	0	(0.0)	0	(0.0)	0	(0.0)	36,198	(66.9)	74,418	(78.4)	5,254	(29.2)	2,544	(60.0)	118,414	(69.1)	118,414	(61.1)
5b Marginal upland	11,726	(93.9)	9,869	(97.6)	21,595	(95.6)	11,795	(21.8)	5,857	(6.2)	12,699	(70.6)	0	(0.0)	30,350	(17.7)	51,946	(26.8)
Total	12,487	(100.0)	10,110	(100.0)	22,597	(100.0)	54,136	(100.0)	94,974	(100.0)	18,000	(100.0)	4,239	(100.0)	171,349	(100.0)	193,946	(100.0)

Note: a/: These lands are identified by GIS assessment as lands which have a potential for development, but are presently sparsely used or unused.
b/: Assumed that 65% of gross prime lowlands and 75% of gross prime and marginal uplands have a net potential for agricultural production.
Source: GIS database, JICA Study Team

Table 2.2 Distribution of Potential Lands for New Development by Agro-ecological Zones in Southern Area (Net Area)

Land Category	Cord	Agro-eco. Zone	WET ZONE Galle/Matara (ha)	(%)	DRY ZONE Hambantota (ha)	Moneragala (ha)	Ratnapura (ha)	Ampara (ha)	Sub-total (ha)	(%)	TOTAL (ha)	(%)
Prime Lowlands	3b	DL5	0	(0.0)	1,698	91	0	0	1,789	(1.0)	1,789	(0.9)
		DL2	0	(0.0)	0	0	0	1,619	1,619	(0.9)	1,619	(0.8)
		DL1	0	(0.0)	3,918	12,352	47	77	16,394	(9.6)	16,394	(8.5)
		IL2	0	(0.0)	0	486	0	0	486	(0.3)	486	(0.3)
		IL1 & IL2	0	(0.0)	0	1,760	0	0	1,760	(1.0)	1,760	(0.9)
		IL1 & IL3	83	(0.4)	528	0	0	0	528	(0.3)	611	(0.3)
		WM3 & IM2	0	(0.0)	0	10	0	0	10	(0.0)	10	(0.0)
		WL4	99	(0.4)	0	0	0	0	0	(0.0)	99	(0.1)
		WL2	748	(3.3)	0	0	0	0	0	(0.0)	748	(0.4)
		WL1	72	(0.3)	0	0	0	0	0	(0.0)	72	(0.0)
		Sub-total of 3b	1,001	(4.4)	6,144	14,699	47	1,696	22,586	(13.2)	23,587	(12.2)
Prime uplands	4b	DL5	0	(0.0)	14,718	465	0	0	15,183	(8.9)	15,183	(7.8)
		DL2	0	(0.0)	0	1,757	0	1,861	3,617	(2.1)	3,617	(1.9)
		DL1	0	(0.0)	20,294	54,509	4,924	683	80,410	(46.9)	80,410	(41.5)
		IL2	0	(0.0)	0	10,490	0	0	10,490	(6.1)	10,490	(5.4)
		IL1 & IL2	0	(0.0)	0	6,778	0	0	6,778	(4.0)	6,778	(3.5)
		IL1	0	(0.0)	0	0	120	0	120	(0.1)	120	(0.1)
		IL1 & IL3	0	(0.0)	1,199	0	214	0	1,412	(0.8)	1,412	(0.7)
		IM2	0	(0.0)	0	321	0	0	321	(0.2)	321	(0.2)
		WM3 & IM2	0	(0.0)	0	98	0	0	98	(0.1)	98	(0.1)
		Sub-total of 4b	0	(0.0)	36,211	74,417	5,258	2,543	118,429	(69.1)	118,429	(61.1)
Marginal uplands	5b	DL5	0	(0.0)	4,517	0	0	0	4,517	(2.6)	4,517	(2.3)
		DL1	0	(0.0)	1,901	465	1,500	0	3,866	(2.3)	3,866	(2.0)
		IL2	0	(0.0)	0	384	0	0	384	(0.2)	384	(0.2)
		IL1 & IL2	0	(0.0)	0	3,121	0	0	3,121	(1.8)	3,121	(1.6)
		IL1	0	(0.0)	0	0	4,226	0	4,226	(2.5)	4,226	(2.2)
		IL1 & IL3	257	(1.1)	4,445	0	727	0	5,172	(3.0)	5,429	(2.8)
		IM2	281	(1.2)	356	1,887	4,110	0	6,344	(3.7)	6,625	(3.4)
		WL4	2,521	(11.2)	0	0	0	0	0	(0.0)	2,521	(1.3)
		WL2	4,571	(20.2)	506	0	0	0	506	(0.3)	5,076	(2.6)
		WL1	11,028	(48.8)	68	0	0	0	68	(0.0)	11,096	(5.7)
		WM1	2,798	(12.4)	0	0	434	0	434	(0.3)	3,233	(1.7)
		WU1	140	(0.6)	0	0	1,713	0	1,713	(1.0)	1,853	(1.0)
		Sub-total of 5b	21,595	(95.6)	11,793	5,857	12,700	0	30,350	(17.7)	51,944	(26.8)
Total			22,596	(100.0)	54,148	94,973	18,004	4,239	171,364	(100.0)	193,960	(100.0)

source: GIS database. JICA Study Team

Table 2.3 Future Corp Yield Levels

Crop	Anticipated Yield in Southern Area		Potential c/		Present Yield d/
	Irrigated (ton/ha)	Rainfed (ton/ha)	Yield (ton/ha)		in Southern Area (ton/ha)
1) Paddy	4.5-5.5	-	6.8		3.0-3.4
2) Kurakkan	2.0	1.5	2.4		0.7-0.9
3) Maize	5.0	3.0	4.0	*	1.0
4) Green gram	1.5	1.0	2.1-2.2		0.8-1.1
5) Cowpea	1.5	1.0	1.5		1.1-1.2
6) Manioc	15.0	9.0	25.0	*	7.2-7.9
7) Sweet potatos	15.0	8.0-9.0	n.a.		5.9-6.5
8) Red onion	15.0	10.0	15-20		4.6-6.4
9) Gingelly	1.2	0.8	1.5-2.2		0.7-0.9
10) Groundnut	1.5	1.0	2.3-3.2		0.4-0.6
11) Chillies	3.0-3.5	2.0-3.0	2.5-3.5		1.8-2.6
12) Vegetables	40.0	25.0	35-40		25.0
13) Tobacco	1.5	1.0	1.2	*	0.5-0.9
14) Tea (green leaves)	-	8.5	5.0-6.0	*	5.2
15) Rubber	-	1.00	1.5	*	0.66
16) Coconut (nuts)	-	9,450	8,000	*	6,300
17) Sugar cane	110.0	60.0	100-120	*	60.6
18) Banana	40.0	25	46		15.4
19) Cashew	-	1.25	n.a.		0.8
20) Fruits a/	38.0	30.0	n.a.		24.0
21) Minor Ex. Crop b/	-	0.8	n.a.		0.5

Note:
a/: as mangoe b/: as cinnamon
Source:
c/: Crop Recommendations Technoguide (DOA), Technology Transfer Division, DOA
Agricultural Implementation Program, 1994-95, MALF, and
Agricultural Compendium (with an asterisk as farmer's yield with good management).
d/: Estimated 1995 average yield in Southern Area.

Table 2.4 Estimated Cultivation Area of Agricultural Crops in Southern Area in 2015

Crop		Present Condition in 1995		Existing Area Dev. in 2015		New Area Dev. in 2015		Total Cropping Area in 2015	
		Area (ha)	Intensity (%)	Area (ha)	Intensity (%)	Area (ha)	Intensity (%)	Area (ha)	Intensity (%)
Wet Zone									
Irrigated Area in Net		29,474		29,474		0		29,474	
Paddy	Maha	29,474	100	29,474	100	0	0	29,474	100
	Yala	22,226	75	23,579	80	0	0	23,579	80
OFCs	Maha	0	0	0	0	0	0	0	0
	Yala	0	0	5,895	20	0	0	5,895	20
Fruits	Maha	0	0	0	0	0	0	0	0
	Yala	0	0	0	0	0	0	0	0
Total		51,700	175	58,948	200	0	0	58,948	200
Rainfed Area in Net		117,792		117,792		0		117,792	
OFCs	Maha	3,758	3	3,758	3	0	0	3,758	3
	Yala	3,018	3	3,018	3	0	0	3,018	3
Tea		38,141	32	38,141	32	0	0	38,141	32
Rubber		16,753	14	16,753	14	0	0	16,753	14
Coconut		26,828	23	26,828	23	0	0	26,828	23
Sugar cane		0	0	0	0	0	0	0	0
Fruits		9,435	8	9,435	8	0	0	9,435	8
Minor Ex. Crop		22,877	19	22,877	19	0	0	22,877	19
Total		120,810	103	120,810	103	0	0	120,810	103
Total Agricultural Lands in Net		147,266		147,266		0		147,266	
Dry & Intermediate Zones									
Irrigated Area in Net		43,755		43,755		22,500		66,255	
Paddy	Maha	43,755	100	30,629	70	15,750	70	46,379	70
	Yala	23,781	54	21,878	50	11,250	50	33,128	50
OFCs	Maha	0	0	8,751	20	4,500	20	13,251	20
	Yala	0	0	17,502	40	9,000	40	26,502	40
Fruits	Maha	0	0	4,376	10	2,250	10	6,626	10
	Yala	0	0	0	0	0	0	0	0
Total		67,536	154	83,135	190	42,750	190	125,885	190
Rainfed Area in Net		106,250		106,250		39,000		145,250	
OFCs	Maha	31,773	30	31,773	30	2,300	6	34,073	23
	Yala	11,898	11	11,898	11	0	0	11,898	8
Tea		1,158	1	1,158	1	0	0	1,158	1
Rubber		2,614	2	2,614	2	0	0	2,614	2
Coconut		26,020	24	26,020	24	0	0	26,020	18
Sugar cane		13,065	12	13,065	12	30,000	77	43,065	30
Fruits		19,532	18	19,532	18	4,600	12	24,132	17
Minor Ex. Crop		12,088	11	12,088	11	0	0	12,088	8
Total		118,148	111	118,148	111	36,900	95	155,048	107
Total Agricultural Lands in Net		150,005		150,005		61,500		211,505	
Southern Area Total									
Irrigated Area in Net		73,229		73,229		22,500		95,729	
Paddy	Maha	73,229	100	60,103	82	15,750	70	75,853	79
	Yala	46,007	63	45,457	62	11,250	50	56,707	59
OFCs	Maha	0	0	8,751	12	4,500	20	13,251	14
	Yala	0	0	23,397	32	9,000	40	32,397	34
Fruits	Maha	0	0	4,376	6	2,250	10	6,626	7
	Yala	0	0	0	0	0	0	0	0
Total		119,236	163	142,083	194	42,750	190	184,833	193
Rainfed Area in Net		224,042		224,042		39,000		263,042	
OFCs	Maha	35,531	16	35,531	16	2,300	6	37,831	14
	Yala	14,916	7	14,916	7	0	0	14,916	6
Tea		39,299	18	39,299	18	0	0	39,299	15
Rubber		19,367	9	19,367	9	0	0	19,367	7
Coconut		52,848	24	52,848	24	0	0	52,848	20
Sugar cane		13,065	6	13,065	6	30,000	77	43,065	16
Fruits		28,967	13	28,967	13	4,600	12	33,567	13
Minor Ex. Crop		34,965	16	34,965	16	0	0	34,965	13
Total		238,958	107	238,958	107	36,900	95	275,858	105
Total Agricultural Lands in Net		297,271		297,271		61,500		358,771	

Note: 1) This table is prepared assuming that all OFCs are cultivated under rainfed in 1995 (present condtion).
2) For paddy, 65% of gross potential area is assumed as net harveted area.
3) For other crops, 75% of gross area is assumed as net harvested area.

Table 2.5 Budgets of Agricultural Crops in Southern Area in 2015

District / Crop		Gross Value: Yield (ton/ha)	Gross Value: Unit Price (Rs./kg)	Gross Value: Gross Value (Rs/ha)	Production Cost: Cost Percentage (%)	Production Cost: Production Cost (Rs/ha)	Net Return (Rs/ha)	Labor Cost: Cost Percentage (%)	Labor Cost: Labor Cost (Rs/ha)	Labor Require. (MD/ha)	Value Added (Rs/ha)
Southern Area Average											
1) Paddy	Maha	5.11	9.96	50,910	65	33,091	17,818	65	21,509	215	39,328
	Yala	5.08	9.96	50,639	65	32,915	17,723	65	21,395	214	39,118
2) Kurakkan	Maha	1.64	10.61	17,396	60	10,438	6,959	70	7,306	73	14,265
	Yala	1.84	10.61	19,572	60	11,743	7,829	70	8,220	82	16,049
3) Maize	Maha	3.56	6.39	22,748	60	13,649	9,099	70	9,554	96	18,654
	Yala	4.38	6.39	27,990	60	16,794	11,196	70	11,756	118	22,952
4) Green gram	Maha	1.14	28.57	32,563	80	26,050	6,513	45	11,723	117	18,235
	Yala	1.35	28.57	38,428	80	30,743	7,686	45	13,834	138	21,520
5) Cowpea	Maha	1.14	20.93	23,859	80	19,087	4,772	45	8,589	86	13,361
	Yala	1.35	20.93	28,152	80	22,522	5,630	45	10,135	101	15,765
6) Manioc	Maha	10.19	5.36	54,605	75	40,954	13,651	55	22,525	225	36,176
	Yala	13.07	5.36	70,040	75	52,530	17,510	55	28,891	289	46,401
7) Sweet potatos	Maha	9.38	9.75	91,410	75	68,557	22,852	45	30,851	309	53,703
	Yala	12.86	9.75	125,376	75	94,032	31,344	45	42,314	423	73,658
8) Red onion	Maha	11.40	27.41	312,475	40	124,990	187,485	25	31,247	312	218,732
	Yala	13.45	27.41	368,686	35	129,040	239,646	25	32,260	323	271,906
9) Gingelly	Maha	0.91	24.50	22,344	65	14,524	7,820	50	7,262	73	15,082
	Yala	1.08	24.50	26,364	65	17,136	9,227	50	8,568	86	17,795
10) Groundnut	Maha	1.14	26.40	30,096	70	21,067	9,029	50	10,534	105	19,562
	Yala	1.35	26.40	35,510	60	21,306	14,204	50	10,653	107	24,857
11) Chillies	Maha	2.94	24.72	72,792	60	43,675	29,117	30	13,103	131	42,219
	Yala	3.28	24.72	80,959	60	48,576	32,384	30	14,573	146	46,956
12) Vegetables	Maha	28.45	5.86	166,741	65	108,381	58,359	35	37,933	379	96,293
	Yala	35.25	5.86	206,571	55	113,614	92,957	30	34,084	341	127,041
13) Tobacco	Maha	1.14	69.21	78,900	80	63,120	15,780	60	37,872	379	53,652
	Yala	1.35	69.21	93,093	70	65,165	27,928	60	39,099	391	67,027
14) Tea (green leaves)		8.50	10.00	85,000	30	25,500	59,500	50	12,750	128	72,250
15) Rubber		1.00	58.00	58,000	70	40,600	17,400	70	28,420	284	45,820
16) Coconut		9.45	5.69	53,771	35	18,820	34,951	20	3,764	38	38,715
17) Sugar cane		60.00	1.00	60,000	80	48,000	12,000	40	19,200	192	31,200
18) Banana		27.57	10.00	275,656	40	110,262	165,394	15	16,539	165	181,933
19) Cashew		1.25	30.00	37,500	50	18,750	18,750	47	8,813	88	27,563
20) Fruits a/		31.28	5.00	156,383	45	70,372	86,011	20	14,074	141	100,085
21) Minor Ex. Crop b/		0.80	168.61	134,888	40	53,955	80,933	21	11,331	113	92,263

Note: a/: Mangoe is assumed as fruits.
b/: Cinnamon is assumed as minor export crop.

Source: Area and yield are estimated based on data from Department of Census and Statistics and Agrarian Research and Training Institute.
Unit price is estimated based on "Price and Wage Statistics, 1992/93, Central Bank of Sri Lanka" together with information obtained at the field.
Costs for production including labor input are estimated by the JICA Study Team.

Table 2.6 Estimated Value Added from Agricultural Crops in Southern Area in 2015

District / Crop		Area (ha)	Gross Production Value: Yield (ton/ha)	Production ('000 tons)	Unit Price (Rs./kg)	Gross Value (Rs. '000)	Production Cost: Cost without Labour (Rs' 000)	Labour Cost (Rs' 000)	Production Cost (Rs' 000)	Net Production Value (Rs' 000)	Value-Added (Rs' 000)	Labor Requirement ('000 MD)
Southern Area, Total or Average												
1) Paddy	Maha	75,853	5.11	387,715	9.96	3,861,639	878,523	1,631,542	2,510,065	1,351,574	2,983,116	16,315
	Yala	56,707	5.08	288,308	9.96	2,871,544	653,276	1,213,227	1,866,504	1,005,040	2,218,268	12,132
2) Kurakkan	Maha	2,908	1.64	4,768	10.61	50,588	9,106	21,247	30,353	20,235	41,482	212
	Yala	1,526	1.84	2,814	10.61	29,861	5,375	12,541	17,916	11,944	24,486	125
3) Maize	Maha	6,163	3.56	21,941	6.39	140,205	25,237	58,886	84,123	56,082	114,969	589
	Yala	794	4.38	3,478	6.39	22,223	4,000	9,334	13,334	8,889	18,223	93
4) Green gram	Maha	11,042	1.14	12,586	28.57	359,572	158,212	129,446	287,658	71,914	201,360	1,294
	Yala	6,415	1.35	8,629	28.57	246,530	108,473	88,751	197,224	49,306	138,057	888
5) Cowpea	Maha	5,239	1.14	5,972	20.93	124,995	54,998	44,998	99,996	24,999	69,997	450
	Yala	2,359	1.35	3,173	20.93	66,419	29,224	23,911	53,135	13,284	37,195	239
6) Manioc	Maha	4,625	10.19	47,120	5.36	252,566	85,241	104,183	189,424	63,141	167,325	1,042
	Yala	7,608	13.07	99,418	5.36	532,879	179,847	219,813	399,659	133,220	353,032	2,198
7) Sweet potatos	Maha	1,350	9.38	12,653	9.75	123,366	50,888	41,636	92,524	30,841	72,477	416
	Yala	2,705	12.86	34,782	9.75	339,128	139,890	114,456	254,346	84,782	199,237	1,145
8) Red onion	Maha	1,077	11.40	12,276	27.41	336,493	100,948	33,649	134,597	201,896	235,545	336
	Yala	807	13.45	10,853	27.41	297,477	78,088	26,029	104,117	193,360	219,390	260
9) Gingelly	Maha	1,507	0.91	1,375	24.50	33,680	10,946	10,946	21,892	11,788	22,734	109
	Yala	1,843	1.08	1,983	24.50	48,584	15,790	15,790	31,580	17,005	32,794	158
10) Groundnut	Maha	3,628	1.14	4,136	26.40	109,197	38,219	38,219	76,438	32,759	70,978	382
	Yala	2,801	1.35	3,768	26.40	99,478	29,843	29,843	59,687	39,791	69,635	298
11) Chillies	Maha	2,657	2.94	7,823	24.72	193,388	81,223	34,810	116,033	77,355	112,165	348
	Yala	4,469	3.28	14,638	24.72	361,844	151,974	65,132	217,106	144,738	209,869	651
12) Vegetables	Maha	8,833	28.45	251,335	5.86	1,472,820	622,267	335,067	957,333	515,487	850,554	3,351
	Yala	15,569	35.25	548,806	5.86	3,216,005	1,238,162	530,641	1,768,803	1,447,202	1,977,843	5,306
13) Tobacco	Maha	2,052	1.14	2,340	69.21	161,937	51,820	77,730	129,550	32,387	110,117	777
	Yala	416	1.35	560	69.21	38,758	10,852	16,278	27,131	11,627	27,906	163
14) Tea (green leaves)		39,299	8.50	334,042	10.00	3,340,415	501,062	501,062	1,002,125	2,338,291	2,839,353	5,011
15) Rubber		19,367	1.00	19,367	58.00	1,123,286	235,890	550,410	786,300	336,986	887,396	5,504
16) Coconut		52,848	9.45	499,414	5.69	2,841,663	795,666	198,916	994,582	1,847,081	2,045,998	1,989
17) Sugar cane		43,065	60.00	2,583,900	1.00	2,583,900	1,240,272	826,848	2,067,120	516,780	1,343,628	8,268
18) Banana		12,152	27.57	334,979	10.00	3,349,792	1,138,929	200,988	1,339,917	2,009,875	2,210,863	2,010
19) Cashew		3,745	1.25	4,681	30.00	140,434	37,215	33,002	70,217	70,217	103,219	330
20) Fruits a/		24,296	31.28	759,895	5.00	3,799,477	1,367,812	341,953	1,709,764	2,089,712	2,431,665	3,420
21) Minor Ex. Crop b/		34,965	0.80	27,972	168.61	4,716,359	1,490,369	396,174	1,886,544	2,829,815	3,225,990	3,962
Total		460,691				37,286,502	11,619,637	7,977,459	19,597,096	17,689,406	25,666,865	79,775
Summary												
Paddy		132,559				6,733,183	1,531,799	2,844,770	4,376,569	2,356,614	5,201,384	28,448
Other field crops		98,395				8,657,993	3,280,623	2,083,336	5,363,959	3,294,034	5,377,370	20,833
Plantation crops		111,514				7,305,364	1,532,618	1,250,389	2,783,007	4,522,357	5,772,746	12,504
Minor ex. crops		34,965				4,716,359	1,490,369	396,174	1,886,544	2,829,815	3,225,990	3,962
Other perennial		83,258				9,873,603	3,784,228	1,402,790	5,187,018	4,686,584	6,089,375	14,028
										Estimated employment (prn):		275,085

Note: a/; Mangoe is assumed as a representative fruit.
b/; Cinnamon is assumed as a representative.

Source: Area and yield are estimated based on data from Department of Census and Statistics and Agrarian Research and Training Institute.
Unit price is estimated based on "Price and Wage Statistics, 1992/93, Central Bank of Sri Lanka" together with information obtained at the field.
Costs for production including labor input are estimated by the JICA Study Team.

Table 2.7 Estimated Value-added from Livestock and Poultry in Southern Area in 2015

	Milk at Present in 1995 (head)	Production in 1995 (lit.)	Rate of Increase (%)	Milking in 2015 (head)	Average Yield in 2015 (lit./day)	Production in 2015 (lit.)	Price of Product (Rs/lit.)	Gross Value (Rs. '000)
Milk								
(1) Cow Milk								
Wet zone	15,300	9,865	-25	11,475	2.00	22,950	11.00	252,450
Dry & Inter. zone	28,114	12,664	-20	22,492	2.00	44,983	11.00	494,813
Southern Area Total	43,414	22,529		33,967		67,933		747,263
(2) Buffaloe Milk								
Wet zone	5,200	3,958	-40	3,120	2.35	7,332	12.40	90,917
Dry & Inter. zone	20,068	12,848	-30	14,048	2.35	33,013	12.40	409,355
Southern Area Total	25,268	16,805		17,168		40,345		500,272
(3) Total Milk								
Wet zone	20,500	13,823		14,595		30,282		343,367
Dry & Inter. zone	48,183	25,512		36,539		77,996		904,169
Southern Area Total	68,683	39,334		51,134		108,278		1,247,535

						Gross Value			Production Cost			Labor Cost			
	Population in 1995 (head)	Production in 1995 (ton)	Rate of Increase (%)	Milking in 2015 (head)	Production in 2015 (ton)	Price of Product (Rs/kg)	Gross Value (Rs. '000)	Gross Value (Rs. '000)	Cost Percentage (%)	Production Cost (Rs. '000)	Net Return (Rs. '000)	Cost Percentage (%)	Labor Cost (Rs. '000)	Labor Require. ('000 MD)	Value Added (Rs. '000)
Meat															
(1) Cattle meat and milk								(milk+meat)							
Wet zone	61,000	423	-25	45,750	396	66	26,150	369,516	45	166,282	203,234	80	133,026	1,330	336,260
Dry & Inter. zone	138,454	447	-20	110,763	447	66	29,528	933,697	45	420,164	513,533	80	336,131	3,361	849,664
Southern Area Total	199,454	870		156,513	844		55,678	1,303,213		586,446	716,767		469,157	4,692	1,185,924
(2) Goat & sheep															
Wet zone	13,000	21	20	15,600	32	120		3,861	50	1,931	1,931	80	1,544	15	3,475
Dry & Inter. zone	24,858	41	40	34,801	72	120		8,613	50	4,307	4,307	80	3,445	34	7,752
Southern Area Total	37,858	62		50,401	104			12,474		6,237	6,237		4,990	50	11,227
(3) Pork															
Wet zone	700	9	28	896	15	60		883	45	397	486	70	278	3	764
Dry & Inter. zone	2,878	38	28	3,684	61	60		3,630	45	1,634	1,997	70	1,144	11	3,140
Southern Area Total	3,578	47		4,580	75	60		4,513		2,031	2,482		1,422	14	3,904

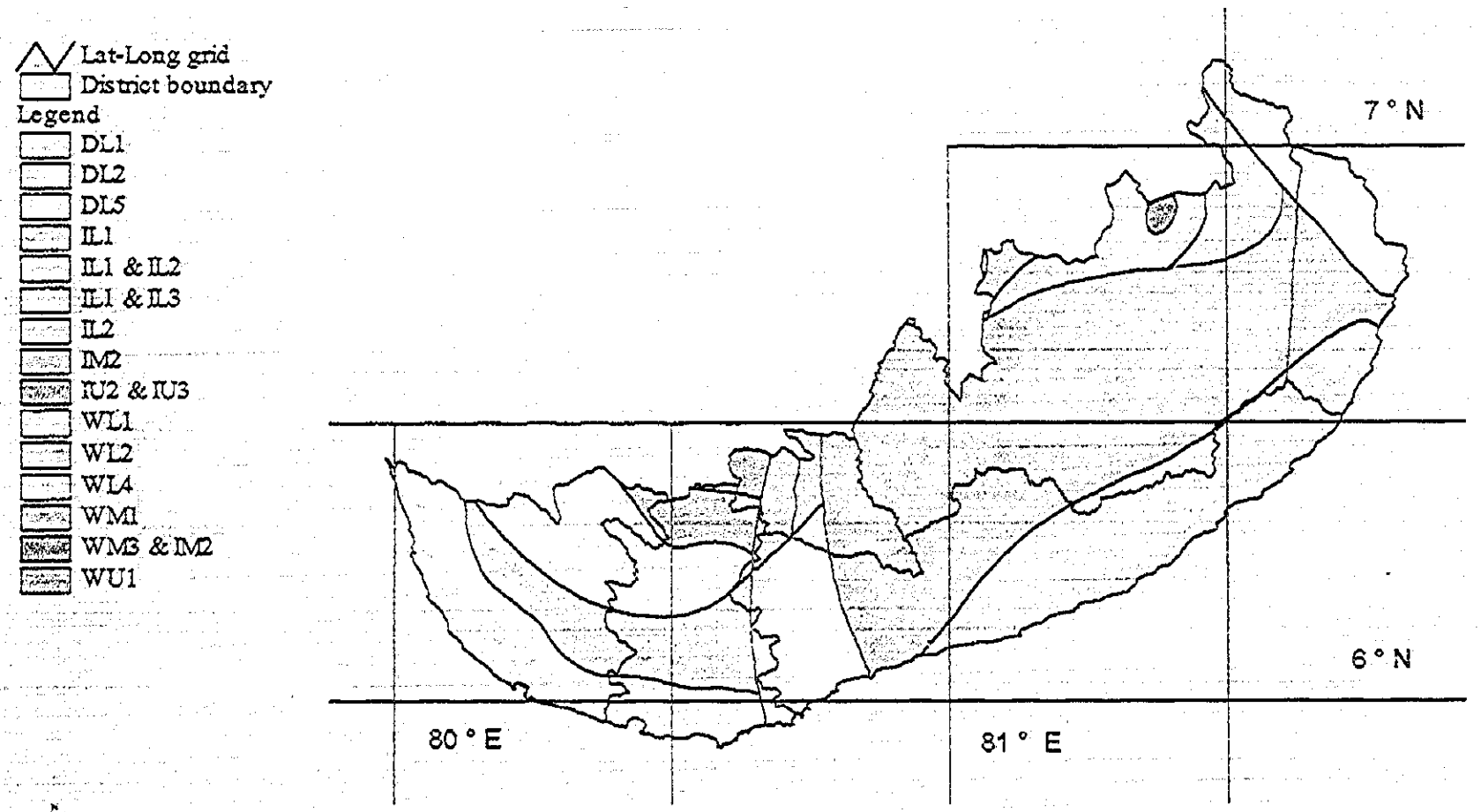
	Population in 1995 (head)	Production in 1995 ('000 No.)	Rate of Increase (%)	Production in 2015 ('000 No.)	Price of Product (Rs/No.)	Gross Value (Rs. '000)
Poultry						
(1) Eggs						
Wet zone	453,600	4,591	65	7,575	2.72	20,605
Dry & Inter. zone	197,780	1,601	65	2,641	2.72	7,184
Southern Area Total	651,380	6,192		10,217	2.72	27,789

					Gross Value			Production Cost			Labor Cost			
District	Population in 1995 (head)	Production in 1995 (ton)	Rate of Increase (%)	Production in 2015 (ton)	Price of Product (Rs/kg)	Gross Value (Rs. '000)	Gross Value (Rs. '000)	Cost Percentage (%)	Production Cost (Rs. '000)	Net Return (Rs. '000)	Cost Percentage (%)	Labor Cost (Rs. '000)	Labor Require. ('000 MD)	Value Added (Rs. '000)
(2) Chicken meat							(egg+meat)							
Wet zone	453,600	1,619	65	2,671	90	240,422	261,026	55	143,565	117,462	25	35,891	359	153,353
Dry & Inter. zone	197,780	706	65	1,165	90	104,841	112,025	55	61,614	50,411	25	15,403	154	65,815
Southern Area Total	651,380	2,325		3,836		345,263	373,052		205,178	167,873		51,295	513	219,168
Total Livestock														
Wet zone							635,287		312,175	323,112		170,740	1,707	493,852
Dry & Inter. zone							1,057,966		487,718	570,248		356,123	3,561	926,371
Southern Area Total							1,693,253		799,893	893,360		526,863	5,269	1,420,223

Estimated employment (pm): 18,168

Source: Department of Census and Statistics
Department of Animal Production and Health

Figure 1.1 Agro-Ecological Zones in Southern Area

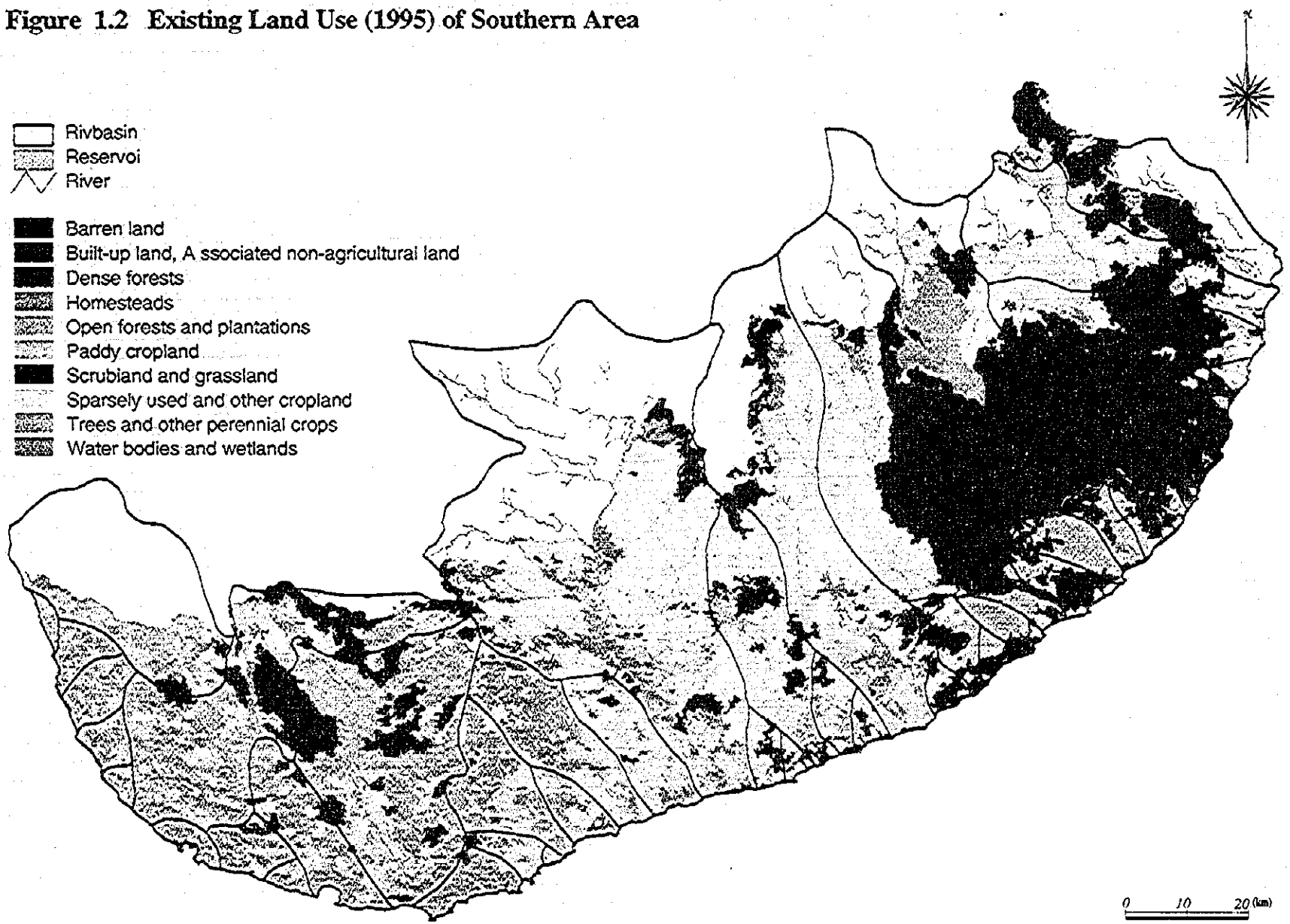


Source : Atlas by Survey Dept.

The Master Plan Study for Southern Area Development of Democratic Socialist Republic of Sri Lanka

Japan International Cooperation Agency

Figure 1.2 Existing Land Use (1995) of Southern Area



Fishery

SECTOR REPORT 1 AGRICULTURE AND FISHERY

PART 2 FISHERY

CHAPTER 1 NATIONAL FISHERIES DEVELOPMENT PLAN

1.1 Fishery Policy, Objectives and Strategy

1.1.1 Fishery policies and objectives

The National Fisheries Development Plan (NFDP) 1995-2000 defines the goal for the fisheries sector as the contribution to national development through the exploitation of the fisheries and aquatic resources on a sustainable basis. The fisheries development objectives include the following:

(1) to promote economic growth through the optimal production of fish to improve nutritional status of the population and to increase foreign exchange earnings,
(2) to reduce poverty by increasing gainful employment and income opportunities particularly in rural areas, and
(3) to enhance resource and environmental protection by improved resource management and conservation measures.

1.1.2 Fisheries strategy

Components of the development strategy in the Plan include the following.

(1) Fisheries resource management - A resource management programme in the coastal fishery will be implemented to prevent over-exploitation and ensure sustainability; appropriate law enforcement including fishing licenses, regulations of type of fishing gears and mesh sizes, and closed seasons will be introduced.

(2) Diversification of fishing methods - To reduce dependence on the gill net fishery, the use of environmentally friendly fishing methods such as line fishing will be promoted through necessary training; demersal fishing will also be promoted.

(3) Offshore and deep-sea fisheries development - To encourage a shift of fishing effort away from coastal areas, a controlled expansion of modern vessels in the off-shore areas will be undertaken.

(4) Inland fishery and aquaculture development - A division has been established in the Ministry of Fisheries and Aquatic Resources to take charge of the development, management, production, and extension in inland fisheries and aquaculture.

(5) Fish seed production and stocking - The Government will provide technical assistance and incentives to rural communities, fisheries cooperatives, and the private sector to produce fingerlings; it will then purchase them for stocking in water bodies.

(6) Fishing rights and management - Common property resources such as reservoirs will be managed in an effective way by providing fishing rights to fisheries cooperative society members to ensure greater participation by the fishermen in management of fishing activities in reservoirs; seasonal tanks will also be developed through participation of rural level organizations established in consultation with the agrarian authorities; the rights for aquaculture in these tanks will be limited to the members of such organizations.

(7) Shrimp farming - Coastal lands identified through zonal planning could be allocated for shrimp farming ensuring no adverse environmental and social impacts, and developed by active participation of the private sector; development of cluster farm or outgrower system would be encouraged to ensure that local communities benefit from efficient shrimp farming.

(8) Infrastructure - The present "open gate system" will be abolished, a proper harbour management system will be introduced to assist fishermen and also to collect user charges to recover the operational costs, and harbours, anchorages and shore facilities will be planned and developed progressively; all existing harbours and anchorages will be provided with shore facilities with the participation of the private sector; investors will be provided with land and fiscal incentives to set up shore facilities such as cold stores, ice plants, boat repair workshops, and slipways.

1.2 Targets in Fish Production

The Plan sets targets for fish production at the national level as follows.

National Fish Production Targets

Unit: MT

	1995	1996	1997	1998	1999	2000
Coastal	178,395	186,890	195,383	203,880	212,000	220,870
Offshore	43,091	52,660	57,138	62,192	68,677	72,610
Inland	17,300	20,417	26,843	34,539	41,124	48,377
Total	238,786	259,967	279,366	300,611	321,801	341,857

Source: National Fisheries Development Plan 1995-2000, MFAR

The Plan concludes based on evaluation of marine aquatic resources that the scope for increased production in marine fisheries is primarily in large pelagic fish beyond the exclusive economic zone (EEZ), but improved exploitation of small pelagic fish is also expected. The potential for increased fish landings from the north and the east of the island is also mentioned once the social stability is restored. Re-commencement of reservoir stocking programme, aquaculture in seasonal tanks and shrimp farming are also envisaged to make substantial contribution to the production.

In 1994, the per capita supply of fish for the local consumption was 12.5 kg/year. According to the fish production envisaged in the Plan, this figure will increase to 17.9 kg in 2000. However, the Sri Lanka Medical Research Institute (MRI) indicated that an average per capita consumption of 60 g of fish a day (21.9 kg/year) was an ideal target. Based on this per capita consumption the total fish requirements in the planned period (1995-2000) are estimated as follows.

Total Fish Requirements to Meet Per Capita Consumption

	1995	1996	1997	1998	1999	2000
Mid year Population (mil)	18.10	18.31	18.51	18.70	18.90	19.09
Total fish requirements (MT)	380,100	384,510	388,710	392,700	396,900	400,890
Total fish supply (MT)	238,786	259,967	279,366	300,611	321,801	341,857
Deficit (MT)	141,314	124,543	109,344	92,089	75,099	59,033

Source: Mid-year population from National Fisheries Development Plan 1995-2000, MFAR

Considering the population projections of about 19 million in 2000, the total fish supply would have to exceed 400,000 MT to meet the per capita consumption target. The present deficit in fish production is expected to decline, with the shortfall to be made up from import substitutes or enhanced fish production from off-shore and inland waters.

CHAPTER 2 EXISTING CONDITIONS

2.1 Conditions in Sri Lanka

2.1.1 Introduction

Sri Lanka has an area of approximately 65,000 km^2 and a coastline of some 1,700 km and contains several bays and shallow inlets. Since the declaration of the Exclusive Economic Zone (EEZ) in 1978 (Figure 2.1), Sri Lanka has sovereign rights over about 500,000 km^2 of the ocean. Fishing takes place all round the coast, but primarily within the continental shelf which has a width rarely extending beyond 40 km and averaging 25 km with a total area of about 30,000 km^2. This is around 6% of the total area of the EEZ. Fishing seasons are generally associated with two monsoons, namely the southwest monsoon from June to September and the northeast monsoon from November to March. The marine fishing industry has been classified into coastal (up to 40 km from coast), offshore (40-160 km) and deep sea (beyond 160 km). In view of the current fishing pattern, a more realistic classification would be coastal (continental shelf area), off-shore (shelf edge to 160 km) and deep sea (beyond 160 km at depths of 100 - 600 metres).

The Government started to assume a more active role in general fisheries development since mid-1950's through the promotion of motorization of traditional craft and the introduction of new types of fishing craft and nets. These developments led to a rapid increase in fish production until mid-1960's. The rate of development was slower during the period 1965-1977, owing to insufficient replacement of fishing craft, and shortage of fishing nets and engine parts caused by import restrictions. The fisheries sector experienced high growth during the 1977-1983 in response to heavy capital input (mainly from the Government), liberalization of imports of essential input, and rapidly growing consumer demand for fresh fish. The contribution of the fisheries sector to the GNP was Rs. 2.99 billion (1.8%) in 1995.

2.1.2 Marine fisheries

(1) Fishing fleet

1) Coastal fishing boats

The coastal fishing fleet comprises a variety of boats all adjusted to local conditions and built in wood and fiber glass. There are several traditional types of boats The *wooden paru* or the beach seine flat bottom craft is made of planks and ribs with an overall length of 11-12 metres. They are propelled by oars for setting beach seines which are manually operated in calm waters and where sea bottom has no obstacles.

The wooden *vallom* or the dug out beach seine craft is propelled by oars for setting beach seines similar to *pani*, mostly in the eastern and northern part of the Country. The dug outs without outrigger are canoes of 3-6 metres in overall length, propelled by oars and sail, used for castnetting, gillneting, hook and line, and trap fishery. The log raft or the *theppam* 3-5 metres in length made from logs pegged together is used near shore for gill netting and hook and line fishery. The outrigger canoes or the *oru* with dug out hulls raised with side strakes have size ranging from 3 to 11 metres. They are used mainly for coastal gill netting and pole and line fishing for skip jack in the southern region. The total number of these traditional crafts currently in operation in DFEO Divisions are estimated at about 26,080 of which some 10,676 are motorized (Table 2.1). All these traditional boats have very low operating costs, but their range of operations and production potential are limited, and these cannot be the vehicle for a rapid increase in coastal fish production.

Since the early sixties, four types of fiber glass reinforced (FRP) boats have been introduced which have gained popularity among the fishermen due to their lightness, speed and low maintenance requirement. These form the backbone of the coastal fisheries. The smallest of these are the 17-23 footers which are undecked open boats. They are propelled by 10-15 HP outboard motor, and used mainly for gill netting, hand-lining, set long-lining and trolling in coastal waters. Some carry 25 HP engines, though not necessary for the type of fishing; the main reason attributed by fishermen is increased competition on the fishing grounds, but more likely reaching the market early. Catch of these boats could vary from 10 to 20 MT per year. Majority of these boats are engaged in catching small seasonal pelagics using small mesh gill nets, hand-lining for demersals and trolling for large pelagics such as Spanish mackerel and tunas.

The FRP 28 footers (3.5 tonners) operate in the far coastal areas using drift long-lines and nets or bottom gill nets. This vessel is designed to give ample free board operating with a crew of four to five men. Its round hull allows greater carrying capacity, and is incorporated with a timber deck, hatches and hatch covers, a cabin situated over the engine and an insulated fish hold. It is powered by an inboard engine of horse-power ranging from 26 to 35 and used as a day boat. Its catching capacity ranges in 20-25 MT per year. It was by far the most popular fishing craft in the 1970s and is well adapted to known fishing methods and sufficiently stable to prevailing sea conditions. Construction of this boat has virtually ceased as fishermen are gradually forsaking the 28 footers in favour of more modern and

multi-day boats. However, some of these 28 footers have been converted by fishermen into multi-day boats by installing a larger insulated box to carry fish on ice, and providing for some make shift bunks for crew rest. Such modifications have caused instability problems as they cannot resist tougher conditions in the off-shore areas. Several of these boats have been damaged or lost at sea in recent years.

2) Offshore fishing boats

Several types of off-shore boats are operated, varying in overall size from around 9.7 metres to 10.4 metres (32-34 ft) known also as 11 tonners. All of them are powered with inboard diesel engines of 30-40 HP, the only exception being the ones introduced under the ADB project, used for trawling in the north-western region and having engines of 45 to 50 HP. All new boats are of fiber glass construction, with insulated fish hold varying from 3.0 to 3.5 ton capacity to carry fish on ice, water and fuel tanks, wheel house, and an engine room located aft of the vessel below the winch house. While they are provided with basic electrical equipment, steering gear, etc., they lack adequate safety and communication equipment. Their designs are quite adequate for fishing and sea conditions in the off-shore areas.

(2) Fish production

As shown in Table 2.2, the annual fish landings from the marine sub-sector increased from 116,000 MT in 1975 to 185,000 MT in 1983 and then declined to 146,000 MT in 1990. The decline is attributed to a reduction in fishing activities in the northern and eastern provinces due to ethnic disturbances. Marine fish production increased to 217,500 MT in 1995 and this increase is from offshore and deep sea waters owing to the introduction of better equipped multi-day boats. Of the 1995 marine fisheries production of 217,500 MT, 72% or 157,500 MT were from the coastal fisheries and 28% or 60,000 MT from the off-shore (Table 2.3). The coastal production also includes landings from the day boats converted into multi-day boats. In the coastal fisheries, tuna and allied species accounted for some 19%, sharks and skates 9%, shore seine varieties mostly composed of small pelagic 32% and the rest composed of king mackerel, horse mackerel and various demersal varieties (Table 2.4).

1) Coastal fisheries

Coastal fisheries are an established tradition based on some 500-530 fish landing sites distributed along the Country's 1,700 km coastline. Fishing is carried out by about 100,000 active fishermen, of whom about 50% are organized into cooperatives, and the rest are private fishermen operating various types of craft. Some 60% of

the fishermen are from the western, southern and north-western regions. Until now the coastal sub-sector is by far the most important and productive means of fisheries exploitation in Sri Lanka. The coastal fish production by DFEO division is shown in Table 2.5. The districts of Galle, Matara and Hambantota (Tangalle) contributed 45,617 MT in 1995 representing 29 % of the Country's coastal fish production of 174,500 MT.

2) Off-shore fisheries

The off-shore fishing has been carried out since the early 1970s. In the early stages the expansion of this fishery was rather slow, but during the last 15 years or so development has been speeded up because of foreign investment programmes and due to various subsidies offered by the Government. At the same time some boatyards started developing craft of their own designs for multi-day fishing, and encouraging fishermen to use them on a pilot basis. The results of these activities were very encouraging and led to increased investment. Statistical estimates of the off-shore production are sketchy and dubious because of the unknown number of day boats converted to multi-day boats fishing in the off-shore areas. According to official estimates, production from offshore/deep-sea in 1995 is estimated at 60,000 MT, an increase by 400% as against the 1990 figure of around 11,666 MT (Table 2.2). Production by species is shown in Table 2.3 and it includes approximately 17,000 MT landed by foreign fishing vessels.

2.1.3 Inland fisheries

(1) Freshwater fisheries

The most important inland water resources are major, medium and small irrigation reservoirs ranging in size from a few hundred to several thousand hectares totaling an area of some 135,000 ha. Of these 90% lie in the dry zone. Only large and medium reservoirs form perennial water bodies. In addition there are a large number of small seasonal village tanks with a total area of about 10,000 ha. There are also around 150 ha of fish ponds, which were constructed and operated under the government pond subsidy programme. With the completion of the Mahaweli irrigation system with 20 major reservoirs, there are an addition of an estimated 23,000 ha.

Freshwater fish fauna includes around 50 indigenous species, and several introduced exotic species such as Chinese carp, silver and big-head carp, three major Indian carp (Catla, Rohu and Mrigal) and tilapia. As shown in Table 2.2, production from this sector in 1989 is estimated at 39,720 MT, more than double the catch of 17,425 MT recorded in 1979.

Contribution by inland fisheries to total fish production has grown from 11% in 1979 to 19% in 1989. The significant increase was attributed to the successful introduction of exotic species particularly carp and tilapia into tanks and reservoirs. Production from perennial tanks constituted 90 to 95% of the total recorded inland catch, due mainly to government stocking programme. Production from freshwater ponds has varied from 200 kg/ha to 5,000 kg/ha.

Stocking of reservoirs and supply of fry/fingerlings to seasonal water bodies and ponds were made through 11 government operated fresh water fisheries stations and three extension centres. Currently there are only two government operated stations. On the basis of a policy decision to terminate state patronage by the former administration, operation of these centres and government direct assistance to the inland sector were stopped. As a result the reservoirs and tanks were not stocked with fry/fingerlings and the production of inland fisheries gradually declined from 39,720 MT in 1989 to 12,000 MT in 1994 (Table 2.2). In 1995 the production increased to 20,000 MT and this is due to the inclusion of about 5,000 MT of coastal aquaculture and lagoon production.

(2) Brackish water and coastal aquaculture

In Sri Lanka, 120,000 ha cover shallow salt-water lagoons, estuaries, deep lagoons and tidal mud flats; of this area 80,000 ha consist of large lagoons and river estuaries, and the remainder tidal mud flats, small shallow lagoons and mangrove areas. An estimated 6,000 ha are potentially considered suitable for coastal aquaculture. Brackish water fish culture is still in its infancy. Only culturing of milkfish has been attempted with promising results, but expansion of this system has not taken place, because most of milk fish fry are collected in the northern province of the Country where access is difficult. Culture of other marine fish has not yet started, although there is good potential to develop this sector, in particular cage culture of groupers, mullets and other species.

Shrimp farming in Sri Lanka started in the late 1970s on a pilot scale as a result of high export prices and demand in the world markets. A few commercial farms started operation to produce and export 100 MT of farmed shrimps in 1985. These succeses gave rise to further investment by private sector individuals and companies for production based on intensive culture. By 1990 the number of farms and pond area increased to 70 and 325 ha, respectively. While targets were set at 5,000 MT for 1990 the actual production did not exceed 600 MT as against the capture production of 4,700 MT at the maximum attained in 1989. The progressive deterioration of pond environment due to intensive culture and the lack of measures to prevent cumulative build up of pollutants adversely affected the growth

of prawns and targets were never achieved. Due to disease, significant area of this sector also suffered from high prawn mortality in the early part of the year. Farmers who were committed to intensive culture have without exception responded to the problem of disease by resorting now to semi-intensive culture with reduced stocking densities and two crops a year. An outbreak of white spot disease in May 1996 was detected in about 2,000 acres of the total 6,000 acres of shrimp farmland in the Puttalam district. A task force to handle the disease has been set up by the Government to tackle the crisis.

2.1.4 Supply demand situation

(1) Supply situation

1) Domestic production

Domestic fish supplies come from capture and culture sources, both of marine and inland waters. Most production is from relatively small-scale fishermen, and the supplies supplemented by the import of dried and canned fish. Total supply available was 408,358 MT in 1995 (Table 2.6). Import and export volumes are shown in Tables 2.7 and 2.8. The bulk of the national catch enters domestic marketing channels in the wet form, either iced or un-iced. There is very little consumption of frozen fish. Consumers' order of preference is firstly for un-iced fish, then for ice fish, frozen fish, canned fish and dried fish.

2) Imports

Imports of fish by volume and value during 1990 - 1995 are shown in Table 2.7. The total import was 37,628 MT in 1990 and increased to 68,343 MT in 1995, accounting for about 70% of dried fish (including Maldives fish) and 29.5% of canned fish. Imports of luxury fish items, except Maldives fish are less than 1%. The dried fish comes from India, Pakistan, Maldives and Thailand. The canned fish imports are mainly from South America and Thailand. The import to Sri Lanka of both dried fish and canned fish was at one time a State monopoly, but has been liberalized and the private sector is now active in this trade.

(2) Demand situation

1) Domestic consumption

Consumption of fish in the wet or fresh form was previously confined to coastal areas and their immediate hinterland until ice was available in sufficient quantities for preservation in moving fish from surplus to deficit areas. Surpluses in producing

areas and production in remote and inaccessible areas were dried and moved in that form to inland areas. Fish in the canned form was also widely distributed in areas not penetrated by wet fish supplies. Dried fish consumption is established in the rural and plantation sectors of low purchasing power. Since canned fish was not produced in Sri Lanka and dried fish was available only in limited quantities, both products had to be imported in progressively larger quantities.

2) Exports

The export of fish and fish products in the past consisted mainly of shark fins, beche de mer and shells. The export of shrimps and lobster began in the 1960s and new products have since been added to the list of commodities exported. The commodities exported in terms of volume and value are shown in Table 2.6. The growth has been steady overall except for set-backs due to civil disturbances as most of the supplies for the export trade in fish and fish products originate from the north and the east, especially for items like shrimp, lobster and beche de mer. The shrimp farming is making a useful contribution to fill the gap caused by dwindling supplies from capture fisheries, and has an increasingly important role in export earning. In 1990 the total export was 3,162 MT, of which 1,855 MT (59%) was shrimp, and in 1995 the total export was 7,457 MT, including 2,780 MT (37%) shrimp. The export of frozen fish increased from 78 MT in 1990 to 1,978 MT in 1995. Exports of live ornamental fish have shown steady growth, with earning increasing from Rs. 68 million in 1990 to Rs. 273 million in 1995. Exports of other commodities, like beche de mer, shark fins and shells fluctuate as most of these originate from the north.

(3) Supply-demand balance

As shown in Section 1.2, the gap between domestic fish supply and demand will be perpetuated and have to be met by continued imports of dried fish including Maldives fish and canned fish, if the per capita consumption levels are not to be reduced. The import in 1990 was 60,203 MT (wet weight equivalent) constituted 26 % of the total available supply (Table 2.6) and in 1995 it increased to 170,858 MT or 43 %. In 1995, 111,995 MT of dried fish (wet weight equivalent) and 50,422 MT of canned fish (wet weight equivalent) were imported, and in terms of value they were Rs. 1.74 billion and Rs. 1.22 billion, respectively.

2.2 Fisheries Related Institutions

(1) Department of Fisheries and Aquatic Resources (DFAR)

The Department of Fisheries and Aquatic Resources (DFAR) is the largest of MFAR's functional organizations. DFAR has inherited many fisheries regulatory and management functions previously performed directly by MFAR. It is also MFAR's principal arm in the provision of extension and other services to the fishing communities. It is charged with administration and enforcement of the Fisheries Ordinance and related policies, development and regulation of fishing through the issuance of licenses and permits, training and the provision of welfare services and improvement of credit (subsidy) schemes for fishermen, and other tasks related to the use of the Country's coastal and offshore fisheries resources. The department has a wide network of field staff through District Fishery Extension Officers (DFEOs), one in each of the 21 districts in the Country. The officers are in turn assisted by a number of Fisheries Inspectors (FIs).

(2) National Aquatic Resources Agency (NARA)

The National Aquatic Resources Agency (NARA), established in 1981, is the MFAR's fisheries and aquatic resources research arm. NARA is the principal national institution responsible for research, management and development activities related to fisheries and other aquatic resources. NARA is organized into four operational areas: Research (where the bulk of its staff belong), the National Hydrographic Office, the Service Units and the Field Stations. The Research area is organized into eight scientific division dealing with Marine Biology, Aquaculture, Fisheries Engineering and Technology, Oceanography, Hydrography, Post-Harvest Technology, Environmental Studies and Socio-Economic and Market Research.

(3) Ceylon Fishery Harbour Corporation (CFHC)

The Ceylon Fishery Harbour Corporation (CFHC) was established in 1972 under the State Industrial Corporations Act of 1957, and charged with the responsibility for construction, operation and management of all fishery harbours and anchorage facilities. CFHC was considered to be a non-profit agency funded by the Government. In 1981 CFHC obtained the government approval to assume commercial profit-making activities that included the construction of fishing and other craft, provision of processing, freezing, storage, packaging and transport facilities for fish, and civil engineering, consultancy and other contractual work. CFHC laboured under these responsibilities and struggled to carry out its main mandate to maintain the fishery harbours and facilities. Due to consistent losses from

operations, the Government decided that CFHC should free itself of all commercial activities and assets by selling or leasing them to the private sector, and that its role should be a purely service-oriented function geared to providing basic harbour and anchorage service to the fishing industry.

(4) Ceylon Fisheries Corporation (CFC)

The Ceylon Fisheries Corporation (CFC) was established in October 1964 under the State Industrial Corporations Act of 1957. Its main objectives were to conduct fishing operations, fish processing, wholesale or retail marketing and distribution of fish, import and export of fish products, importation and sale of fishing gear, execute work to promote the fishing industry for the Fisheries Department or other government departments, to construct fishing boats, and to provide repair and maintenance facilities for fishing boats. These objectives were based on the concepts that there was a need to modernize and develop the fishing industry by government intervention and that assistance could be provided to both producers and consumers by CFC becoming the market leader.

Currently, most of the CFC's activities have been relinquished except for some marketing activities and joint-venture fishing operations with China and Taiwan. CFC possesses marketing facilities (cold stores, vehicles, regional marketing centers and ice plants) which were intended to provide a means of establishing a market leadership to influence fish prices and supplies. However, most facilities have been loss makers, CFC never having had more than 3% coverage of the national market. It would be rational for CFC to divest such commercial activities to the private sector which could operate profitably and efficiently.

(5) Cey-Nor Foundation Ltd.

Cey-Nor originated as the non-profit making Cey-Nor Development Foundation in 1967 was incorporated as a limited company with a wide ranging objectives relating to development of the fishing industry, fish production, community development, fish processing and marketing, construction and repair of boats, net making, ice making, export of fish products, etc. In 1985 the company was acquired by the Government and operated until 1990 as a Government-Owned Business Undertaking (GOBU). In January 1990 it was incorporated under the Convention of Public Corporations into Public Companies Act No. 23 of 1987 and the Companies Act No. 17 of 1982, and its entire share capital is now vested in the Government.

Organizationally, Cey-Nor is an institution under the authority of MFAR and its operations are monitored by MFAR. Its main activities are production and sale of FRP fishing boats, fish netting and ice.

(6) Fisheries cooperatives

Fisheries cooperative societies comprise a three-tier structure: primary societies, secondary unions, and an apex foundation. The primary societies are of two basic categories: large primary fishermen's societies (comprising several villages), which came into being in 1972, and the smaller village-level fisheries cooperative societies (Grama Seva-GS) being set up under a reorganization scheme initiated by the Government in 1990. The basic requirement to form a village level cooperative is a minimum of 100 members; a member should be above 18 years of age and be resident within the GS division, and he/she should buy at least one share valued at Rs. 100. A GS level cooperative is managed by a seven-member committee selected by the general body of the cooperative. Two of the seven committee members must be women and two should be of ages between 18 and 35 to ensure youth representation on the committee.

At present there are 769 village level fisheries cooperatives with a total membership of 89,000, of which about 20,000 are women. These societies have assets amounting to Rs. 378 million that include a subsidy of Rs. 141 million provided by the Government and bank loans of Rs. 144 million. In addition there are 11 district fisheries society unions, a national federation of fisheries cooperative societies, and 27 fisheries cooperative societies of other types. However, most of the fisheries cooperative societies are not functioning properly and have not been able to provide the leadership and the organization that the fishing communities need. It appears that the cooperatives were formed largely in response to subsidy possibilities.

2.3 Existing Conditions in Southern Area

With regard to coastal features in Southern Area, from Bentota southwards up to Matara the coast is a series of headlands, pocket beaches and embayments (e.g. Galle, Weligama), and from Matara to Tangalle the coast contains rocky areas. The southwestern coastline is subject to severe coastal erosion, and protective works have been constructed over the past years at considerable cost. In the urban and rural areas, those affected most by the scourge of coastal erosion are the fishing communities by beaches. There are a number of lagoons lying in this area. The outlets of most of these are closed during the southwest monsoon period, affecting the lagoon fishery and agriculture in the adjacent areas due to rise in water

levels. From Tangalle to the Yala National Park the coastline consists of large dune formations and stable beaches. The lagoons located in Hambantota support extensive salt industry.

2.3.1 Galle district

(1) Marine fisheries

The marine fisheries sub-sector is of considerable importance in the district. According to the District Fishery Extension Officer, the fishermen population in Galle is 15,580, of which about 4,890 are considered active fishing population. The total fishing fleet was 1,085 in 1995 (Table 2.10).

Characteristics of the marine environment are accountable for the development of the fisheries along the southwestern coast of Sri Lanka. The continental shelf around Galle has an average width of 23 km and it is narrower near Dondra. The sea from Ambalangoda to Galle is particularly favourable for fishing. The bottom conditions of the sea from Galle to Unawatuna is rough and trawling is very limited. Approximately 85 % of the catch comes from coastal fishery. Different types of fishing craft and gear are used for fisheries. Although the bottom trawling is limited due to rough topography of the continental shelf, drift net, bottom set gill net, bottom long line, trolling and beach seining are the popular fishing methods. Angling is very popular in Ambalangoda, Hikkaduwa and Galle. Spanish mackerel (seer), horse mackerel (paraw), skipjack tuna (balaya), yellow tuna (kelawalla), shark, skate, rockfish (small and large), and shore seine varieties (large and small) are caught in Galle district. The coastal fish production increased from 12,885 MT in 1989 to 15,309 MT in 1995 (Table 2.9).

(2) Supporting services

1) Fishery harbour and anchorages

Galle district has one fishery harbour at Galle and a number of anchorages scattered along the coast. The four main anchorages, as defined by CFHC, are at Balapitiya, Ambalangoda, Hikkaduwa and Dodanduwa. Details of the facilities in the fishery harbour are shown in Table 2.11.

The Galle fishery harbour was planned as a deep sea industrial fisheries harbour (quaywall of about 100 m) with its shore facilities included on completion (cold store, freezing plant, flake ice plant, slipway, etc.), which are now non-operational (Table 2.11). There has been no maintenance and management of these facilities resulting

in a total damage to buildings, equipment and machinery. Lack of a cold storage facility is a major constraint to optimum harvesting of seasonal migratory fish in the southern coast. Boat repair and maintenance are also constrained by the lack of a boat lifting arrangement and workshop.

Except for the ice plant which is operated by a private firm on 33-year lease, other facilities are not used and are in dilapidated conditions. CFHC has an office to manage the fishery harbour, and according to the officer in charge, during the open gate policy, the role of CFHC has been minimal with some of the functions of CFHC given to the District Cooperative Union. The union is trying to facilitate the fishermen who are mainly involved in commercial type of fishing using multi-day boats. However, its activities are inhibited by some administrative interference caused by the use of naval facilities at the harbour by the Sri Lankan Navy. The canteen which supplied food and other facilities to the fishermen as well as to all the other workers had to be closed since the building was taken by the Navy. Therefore, the activities of the union have been limited to operation of a fuel station. The union has rented the fuel station at the rate of Rs. 650 per month and the Rs. 9000 per month for the office and facilities. Four persons are employed by the union: two persons to maintain the premises and other two persons to run the station. A margin of 23 cents per litre of fuel sold is earned by the union. According to the union, the capacity of water supply is not sufficient when the demand is high. Most of the plans to upgrade the services have been abandoned due to the fact that the large part of the buildings that could have been used to accommodate stores and other facilities have been taken over by the Navy.

3) Ice plants

There are four private ice plants in the district with a daily capacity of about 75 tons (Table 2.12): two in Galle fishery harbour (one is a newly constructed 25 ton capacity flake ice plant and the other is 20 ton capacity block ice plant which is taken on lease from CFHC), and one in Hikkaduwa (15 ton block ice) and another located in Ambalangoda (15 ton block ice). The demand for ice is high and there is a plan to add another 20 tons capacity.

4) CFC Galle office

The Ceylon Fishery Corporation (CFC) has a purchasing office and two retail stalls in Galle. The activity is mainly to buy and transport fish to a CFC cold room in Colombo. It also supplies a total weight of 60 kg of fish to two hospitals in Galle.

According to the CFC's log book, it has been purchasing on an average 80 tons of fish, mostly of tuna varieties. Currently it uses a rented insulated truck to send fish to Colombo which costs about Rs. 2,500 per trip and the transport time is about 4 hours. It does not market or transport fish to the interior.

Since 1995 CFC has been purchasing from 3 to 15 tons a month from foreign fishing vessels visiting the Galle fishery harbour for refueling and servicing; these fishing vessels have agreements with the Sri Lankan Government to fish in international waters and land their low grade fish in Sri Lanka. CFC has contracted to purchase these fish at prices slightly lower than the prevailing landing price.

(3) Inland water bodies

Galle district has very few inland water bodies. The DFEO has identified about 12 ha of tanks and requested for some 50,000 fingerlings (Tilapia and carp) for stocking; it has received 1,715 fingerlings till July 1996 (Table 2.13). There had not been any attempts to develop inland fishery, even before the stoppage of government assistance to inland fishery in 1990. There are about 4,500 ha of lagoons in the district and the large sized lagoons, namely Koggala; Madugamga and Ratgama are possible candidates for culture activities.

2.3.2 Matara district

(1) Marine fisheries

The importance of marine fishing in the district is clearly shown by the fishing settlements along the 55 km stretch of coast line: Kapparatota, Kamburugamuwa, Mirissa, Puranawella, Gandara, Weligama, Nunawella, Kottegoda, Nilwella, and Dickwella. According to the DFEO office, Matara has 21,789 fishing population (4,498 households) with 6,290 active fishermen. The total number of fishing fleet is 2,205 (Table 2.10).

About 95% of the annual fish catch is confined to coastal and off-shore resources. In comparison with the other coastal districts the continental shelf in the Matara district is much narrower and this indicates limited productive capacity of marine resources in the inshore area.

The harvesting pattern of coastal resources fluctuates according to the prevailing weather pattern in the district. A considerable proportion of fish catch is during the southwest monsoon. Of the annual fish catch, two thirds are from pelagic species, and demersal and semi-demersal species. The small pelagic fish that are abundantly available are sardines, Indian mackerel and herrings, and the large pelagic fish are Spanish mackerel, and tuna

species. The small demersal fish found in the southern coast are prawns, silver bellies, moonfish and ribbon fish. The large demersal fish include breams, groupers, and snappers. The annual coastal fish production increased from 10,821 MT in 1989 to 14,408 MT in 1995 (Table 2.9).

(2) Supporting services

1) Fishery harbour and anchorages

Matara district has two fishery harbours: one at Mirissa and the other at Puranawella, and a number of anchorages along the coast. The three main anchorages, as defined by CFHC, are at Kottegoda, Gandara and Matara. Details of the facilities in the fishery harbours are shown in Table 2.11. Lack of modern equipment for deep-sea fishing and poor infrastructure facilities are the major constraints in the utilization of resources. Mirissa is one of the well designed harbours with a basin area of about 7 ha with a depth of 2.5 m protected by a breakwater for safe anchoring of boats, and a quay wall of 156 meters for unloading. Service facilities include a fuel tank of 9,100 liter capacity, 18,000 liter capacity water tank and a 5-ton capacity boat lifting, which are all non-operational; the ice plant and cold store are leased to private companies, but are inoperative. The ice store room is used for sales of ice brought from outside the harbour. Fuel and water are supplied by trucks from outside.

The Puranawella fishery harbour has a basin area of approximately 8.5 ha protected by a main breakwater of 325 meters. This harbour was constructed without any coastal engineering studies prior to the preparation of detailed designs. The shelter offered by the partly built breakwater was inadequate and navigation in and out was a serious problem. A coastal engineering study and rehabilitation work including extension of breakwater and groyne are underway. Although the Puranawella harbour has no landing facilities, no harbour office, no fish receiving stations, no marketing shed and poor access road, it is one of the busiest harbours. A tremendous hardship has been borne by fishermen There are plans for a quay wall for unloading and loading, and other service facilities.

2) Ice plants

Matara has the largest number of ice plants in Southern Area: eight block ice plants (total capacity of about 150 tons a day) of which two located in the Mirissa and the Puranawela fishery harbours are not in operation (Table 2.12). The operational

capacity of the ice plants is about 80 %. Ice produced in Matara is transported to Galle, Tangalle, Hambantota and Kirinda.

(2) Inland water bodies

Freshwater fish production is minimal in Matara district. There are no recorded data and no attempts have been made to identify the potential of inland waters in the district. Matara has small size water bodies of 292 ha perennial tanks and 84 ha seasonal tanks. The DFEO Matara has a plan to stock with 55,000 fingerlings; it has received 20,610 fingerlings till July 1996 from the Udawalawe station (Table 2.13).

(3) Prawn hatchery

A local joint-venture with a Belgian company has established a prawn hatchery in Weligama to produce post-larvae (baby shrimps) which will be sold mainly to local prawn farmers (out-growers) with a buy-back guarantee from the company. It will be selling at a discount price to out-growers, who will also receive the priority when the post-larvae are in short supply. The company will engage a consultant for the out-growers to carry out their operations successfully. The company will buy back the total production of prawns offered for sale by the grow-out farmers for processing export; it confirms that 99% of the processed prawns will be exported.

Currently the hatchery has the capacity to produce 5 million post-larvae per month, and it has a plan to expand its hatcheries facilities to produce 20 million per month. Further the company has a plan to undertake an extensive training programme for youths in the Southern province in larviculture which will enable them to start up their own backyard hatcheries.

The company has also a plan to establish a processing plant, where the prawns purchased from the out-growers on a regular basis will be processed for export. The grow-out farms will be provided with proper techniques of culturing and harvesting. Finished product as proposed is about 20 tons of processed prawns a month. Another prawn hatchery is being set up in Weligama by a leading Sri Lankan prawn farmer who is already quite established in the Puttalum area.

2.3.3 Hambantota district

(1) Marine fisheries

Hambantota district has a coastal belt of approximately 137 km, from the Kudawella fish landing centre up to the Kumana bird sanctuary. The district benefits from two monsoon

rains from the northeast and the southwest. The total area of the continental shelf belonging to the district is around 280 km^2. According to the DFEO, the district has 4,982 fishing households with 6,027 active fishermen, and 2,340 fishing fleet (Table 2.10).

The annual coastal fish production increased from 11,436 MT in 1989 to 15,499 MT in 1995 (Table 2.9). Small pelagic fish like sardine, herring, anchovy and mackerel and the larger pelagic fish like tuna, skipjack, seer and shark are the major species caught during the two monsoons.

There are some 16 lagoons scattered along the coastal belt ranging in size from 31 ha to 570 ha with a total surface area of approximately 2,800 ha. Some are connected to the sea throughout the seasons while some are completely isolated except when temporary passage is created by local farmers or fishermen. About a half of the lagoons have freshwater inflow from streams, the remainder having little or no influx of freshwater other than precipitation. Some 10 lagoons are used for fishing while three others are used for salt production. In several lagoons where some commercial fishing is taking place, fibre glass dugouts have been provided under a subsidy scheme.

(2) Supporting services

1) Fishery harbours and anchorages

There are two fishery harbours: one at Tangalle and the other at Kirinda, and about 30 fish landing centres along the coastal belt. Three main anchorages are at Kudawella, Kalametiya and Hambantota. Details of the facilities at Tangalle and Kirinda are shown in Table 2.11. The Tangalle fishery harbour has a basin area of about 2 ha with dredged depth of 2.5 meters, and a quaywall of 110 meters, and is protected by a breakwater of about 150 meters. The shore facilities which include a block ice plant, cold store, workshop, fuel outlet and a boat lift have been leased to the private sector, and some of these require major rehabilitation.

The Kirinda fishery harbour was constructed in 1985, and the entire basin was silted due to heavy sediment transport caused during the northeast monsoon period. The southwest monsoon aggravated the situation by throwing sand over the main breakwater. It was rehabilitated supported by coastal engineering studies; the rehabilitated harbour has a basin area of about 3.2 ha protected by a breakwater of 440 meters and a groyne of 125 meters, a groyne on the northern side (200 meters) and sub-breakwater (230 meters). The harbour contains a quaywall of 180 meters for unloading fish and loading fuel, ice and provisions. Shore facilities consisting of

marketing hall, 5 tons cold store, 5 tons flake ice plant, fuel and water tanks are not operational.

2) Tangalle Regional Fisheries Training Centre

The Tangalle Regional Fisheries Training Centre was established in 1973 to serve the needs of coastal fishermen in the Galle, Matara and Hambantota districts, and it plays a key role in fishery development. The centre is housed in an old building with limited staff accommodation, office and other facilities that include a large classroom, various gear stores, and a small engineering workshop with basic tools and equipment. There are four instructors for engines and another four instructors for fishing gears. Three course conducted at the centre are: (a) marine engine technical course, (b) fishing gear technology course, and (c) mobile training extension course. The center has three training vessels: 25 ton FRP Japanese built drift gill netter, 28 ft - 3.5 ton locally built FRP gill netter, and an 18 ft locally built FRP outboard powered boat.

3) CFC Tangalle

The CFC office is located in the Tangalle fishery harbour and its present function is only to purchase and transport fish to Colombo and some sales points in Badulla, Nuwara Eliya, Bandarwela and Ratnapura. About 75% of the fish (mainly tuna/skipjack) are sent to the sales points and 25% to Colombo. The CFC Tangalle has no cold store facilities and its only available insulated trucks and pick-ups are depreciated and are in need of repair.

4) Ice plants

There are three ice plants in Hambantota district: one in Tangalle (10 ton plant within the fishery harbour), a 5 ton ice plant provided by NORAD in Hambantota, and another 15 ton ice plant in the Kirinda fishery harbour which is not operated and waiting to be leased to the private sector (Table 2.12). Currently there is a shortage of ice, and ice blocks are brought from Matara for sales. Fish marketed hinterland as far as Wellawaya and Empilipitya depends on ice from Hambantota.

5) Udawalawe Inland Fisheries Station

The Udawalawe Inland Fisheries Station was established by MFAR in 1970/71, and is located close to the Udawalawe reservoir. It occupies one end of Ratnapura district and happens to be just on the boundary of Moneragala and Hambantota districts. It was designed for breeding and rearing of Chinese carp, Indian carp,

common carp and tilapia. The main station covers an area of 3,350 m^2 consisting of buildings, 67 mud ponds and 55 cement tanks. When the government patronage to inland fishery was withdrawn in 1990, this station underwent some changes; a part of the buildings, facilities and ponds were leased to the private sector, and the remainder was operated by NARA for research purposes. Some of the facilities have been destroyed and the buildings and ponds were in ruinous conditions when the Government took them over in 1994 under the new policy. The station is currently facing shortages of skilled and trained staff, equipment, laboratory facilities and pond facilities.

Currently, the station has a chief aquaculturist with an assistant and two graduate trainees, and 24 workers. During those years under the private sector and NARA, there was no production of fingerlings and as a result tanks and reservoirs were not stocked with fingerlings. After the MFAR's take over in October 1994, the centre produced 0.6 million fingerlings in 1995. Of the total 337,850 fingerlings stocked, 289,600 fingerlings (86%) were stocked in Moneragala, Hambantota and Ratnapura districts. In January to July of 1996 the station stocked 194,925 fingerlings, of which 163,175 fingerlings were stocked in reservoirs, perennial tanks and some selected seasonal tanks in Southern Area (Table 2.13).

According to the chief aquaculturist, under ideal conditions prior to stoppage by the Government, the station produced more than 2 million fingerlings a year. Some facilities and ponds adjacent to the station have been leased to the private sector for 33 years; unavailability of these facilities is a constraint to the fingerlings production. The station is in need of the leased facilities which could be used to increase the fingerlings production; however, these leased facilities are presently used for production of ornamental fishes.

6) Muruthawela Inland Fishery Station

The Muruthawela Inland Fishery Station is located about 220 km away from Colombo off Tangalle, covering an area of about 12 ha. Office buildings, quarters and stores occupy a floor area of 1,056 m^2. It was designed for breeding and rearing of carp and tilapia. Extensive damages were caused by terrorists to the buildings and ponds of this station during the year 1989. There are 42 mud ponds and 20 cement tanks covering an area of 3.1 ha. This includes the ponds constructed under ADB assistance. Out of these ponds, 22 ponds and 10 cement tanks are in a workable condition. Others are damaged or subjected to heavy seepage.

Before the withdrawal of government assistance in 1990, the average production of fingerlings had been approximately 500,000 per annum. Since it was leased to the private sector, it has been producing mainly ornamental fishes such as gouramy, goldfish and guppies, although it has an agreement with the Government to produce fingerlings for purchase by the Government for stocking in public waters. It produced 248,000 fingerlings in 1994, and it produced and stocked only 20,000 fingerlings in 1995. Production costs are 60-70 cents for tilapia fingerlings and Rs. 1 for carp. They are sold to the fisheries at Rs. 1.50 and Rs. 1.00 per fingerling of carp and tilapia, respectively.

(3) Inland water bodies

Hambantota district has 7,331 ha of the inland water area of 50% of the total in Southern Area (14,980 ha). There are 21 perennial tanks (4,188 ha) scattered in the district. Perennial tanks account for 80% of the total surface area of standing freshwater bodies in the district. There are probably more than 460 seasonal tanks existing in the district. Seasonal tanks usually retain water for six to eight months of the year. They generally receive water during the northeast monsoon, from October to March.

MFAR had been regularly stocking these perennial and seasonal tanks with fingerlings from the Udawalawe and the Muruthawela stations from 1970 until the programme was terminated in 1990. Since 1990 no fingerlings were introduced to perennial or seasonal tanks and as a result the freshwater fish production and the income level of fishing households were seriously affected. Most of the tanks still do produce certain quantity of freshwater fish without stocking. The intensified effort to develop inland fishery in Hambantota before 1990 had been supported by NORAD. The stocking by MFAR started in 1995 and 161,500 fingerlings were stocked in 1995. The DFEO had a plan to stock with 215,000 fingerlings in 1996; it received about 79,450 fingerlings from January to July in 1996 (Table 2.13).

2.3.4 *Moneragala district*

Moneragala district has several large perennial and seasonal tanks. The part of the Lunugamvehera reservoir also comes under Moneragala district. Approximately 3,654 ha (3,121 ha of perennial tanks and 533 ha of seasonal tanks) or 24 % of the inland water area in Southern Area are in Moneragala district. A stocking programme is underway. In 1995, about 72,600 fingerlings were stocked, and for 1996 it had a stocking plan of 181,000 fingerlings, of which it received 34,550 fingerlings by July (Table 2.13).

There are 14 inland fishermen cooperative societies in the district. These cooperative societies were organized basically for the fishermen to receive subsidy for purchase of fingerlings.

2.3.5 Ratnapura district

The divisional secretariats of Embilipitiya and Kolona of Ratnapura district have approximately 42 km^2 of reservoirs and tanks suitable for inland fisheries. The Udawalawe reservoir and the Chandrika reservoir are situated in these divisions. In 1995, about 55,500 fingerlings were stocked. The planned quantity for 1996 was 80,000 fingerlings, of which about 26,850 fingerlings were stocked by July.

2.3.6 Marketing system

Sri Lanka has a fairly efficient system of fish distribution and marketing driven by the private sector (Figures 2.2 and 2.3). Major terminal wholesale markets are in Colombo and Kandy. Fish not transported to markets in major cities or towns is mostly consumed in local markets or transported to hinterland areas (Figure 2.2). Much of the fish supplied to domestic consumers is moved by several traders, and they can be categorized by activity as follows. Some of the traders may perform more than one role.

- Wholesalers:	Assembler cum transporters, or Assembler/wholesaler/commission agents.
- Mobile retailers:	Motor bicycle/van vendors, Cycle vendors, or Vendors by foot.
- Retailers at fixed locations:	Road-side slab operators, Market retailers, or Producer retailers.

These traders carry out business as individual enterprises, partnerships and family businesses rather than as companies. All of them confine their operations to limited areas, generally their home grounds, and do not attempt to operate on a geographically extensive scale like CFC. Fish is moved without too much waste from producers to consumers, with the quality of fish at point of delivery usually quite acceptable; localized gluts are handled by drying as well as unsold fish near to spoilage.

The most dominant flow of fish is from most landing centers to the St. John's terminal market in Colombo. This feature is observed at all locations except at the landing center of Hambantota, whose fish is supplied to the interior. Some traders who operate at the landing centers (Galle, Matara, Mirissa, Dondra, Puranawela, Kudawella, Tangalle, etc.) supply the interior markets; this is normally undertaken by assembler-traders with transport facilities of their own. However, the regularity of dispatching the fish depends on the nature of supply. Another feature is that traders from the interior frequent the landing centers to buy their requirements of fish; however, their visits are dependent on the availability of fish at particular landing centers. These traders from the interior may have no direct access to the producers but have to obtain their requirements through local traders who control the landing center operations.

With transport and ice supplies being more freely available, fishermen are increasingly packing their catch themselves and consigning to the metropolitan and/or inland wholesalers, thus bypassing the coastal wholesalers (Figure 2.2). CFC's marketing channel handles less than 5% of the marketed volume, and they are in no position to compete with the private sector.

In terms of risk element in the marketing channel, the greatest risk is taken by the coastal consignor who buys at contracted fixed prices, as he is committed to buy the entire catch. He who buys at the auctions also runs a risk but to a lesser extent because he can control the quantities he buys. This type of operation is not common nor widespread. An element of risk is also attached to the retailers including vendors, in that they may have to sell below their cost on occasions to dispose of their stocks because they are hardly equipped to storing fish overnight. There is no financial risk attached to the operations of metropolitan wholesalers or commission agents. They operate on a commission basis and whatever the price, he is assured of his commission. The fishermen who consign their catch directly are also taking risk.

The retailers in the fish trade are of different types. The distance covered and the quantity traded by a mobile retailer depend on the mode of travel. A retailer using a motor cycle covers a distance of about 40 km a day. For example, traders take fish from Kudawella or Tangalle and travel to fairs in the interiors such as Katuwana, Emplipitiya, etc., and a retailer using a van travels as far as Wellawa to supply other retailers, especially road side slap operators and street vendors at intermediate points. Bicycle vendors cover short distances of about 15-25 km and handle less than 40 kg of fish a day.

The retail fish markets in the district capitals of Galle, Matara and Hambantota are located in commercial areas of the respective towns. Buildings are usually old with small fish stalls. The fish traded in the market are purchased directly from boat owners. They have no cold stores and fish displayed without ice and exposed to flies appear very un-hygienic. Unsold fish are kept in boxes for sales on the next day or dried. The marketing of inland fish from reservoirs and tanks is very effectively managed by bicycle traders.

2.4 On-going Projects

(1) ADB funded projects

An ADB funded program is being currently implemented in fisheries, which covers the area from Puttalam in the northwest to Hambantota in the south. The program consists of the following.

1) Harbour and anchorage rehabilitation - which comprises (a) coastal engineering studies and environmental impact of selected existing fishery harbours and anchorages, and (b) rehabilitation of selected fishery harbours and anchorages including dredging, repair and construction of breakwaters, quay walls, etc. In Southern Area the existing fishery harbour at Puranawella and the existing anchorages at Ambalangoda, Hikkaduwa, Dondanduwa, Kapparatota, Gandara, Kottegoda, Kudawella, Panadura, Hambantota and Dikowita had been identified as candidates. After investigation and consultation Dickowita, Panadura, Hikkaduwa, Dondanduwa, Kottegoda, and Kidawella were selected in 1995. For rehabilitation works (including dredging) the existing fishery harbours in Puranawella, Mirissa and Beruwala have been selected.
2) Fishing community development - which comprises (a) coastal conservation and protection measures, and (b) social infrastructure support to about 60 selected fishing communities for supply of basic village amenities. Under the social infrastructure development, the facilities such as rural access roads, culverts, drinking water facilities, latrine, health and education facilities are implemented. A concept of village clusters was adopted instead of individual villages. On this basis six village clusters in Galle district , eight in Matara and six in Hambantota are identified.
3) Research and institutional support - which comprises (a) research and resource surveys and an assessment survey of coastal and offshore fisheries resources, and (b) provision for policy and institutional strengthening and support including shore-based communication equipment and vehicles, materials, etc.

4) Technical assistance - which is designed to advise MFAR on the particular issues of re-instituting management of fishery harbours and marine resources, and raising revenues through license fees and user charges (habour management system).

(2) Other projects

1) A pilot project on the development and management of the spiny lobster fishery is being implemented to assess the feasibility of transferring the Caribbean "casita" technology to Weligama and Kalametya.
2) NARA has been entrusted to undertake a trial of practical mussel farming in lagoons - Dedduwa, Madampe and Hikkaduwa. This trial was to implement results from the mussel raising activities in the northwest of the Country, transfer the technology that has proved successful there, and modify it appropriately to local conditions.
3) Services to fisheries sector in Hambantota district have been provided under the NORAD funding through Fisheries Cooperative Societies and District Fisheries Cooperative Union. Under this programme, outboard motors, fishing gear, motor cycles and bicycles are provided on a loan basis. Cycles and motorcycles are for marketing of quality fish to interior villages in the district.
4) A prawn hatchery (Sri Lanka-Belgium joint venture project) with a capacity to produce 60 million post larvae a year, has been set up in Weligama and has commenced operation under BOI arrangement. Another prawn hatchery is being set up in Weligama by a leading Sri Lanka prawn farmer.
5) The small scale fisheries development programme in inland fisheries, assisted by Sri Lanka Canada Development Fund (SLCDF), commenced in early 1995. SLCDF adopted out a strategy for rearing fish fingerlings from fish fry upto marketable size through community participation. A pilot project has already started in Moneragala district covering five seasonal tanks in Siyambalanduwa namely, Mahahelamulla, Heenhelamulla, Galamuna, Siyambalagasyaya and Bodagana, and in Ratnapura district covering seasonal tanks at Thunkamanamely, Mahawewa and Aluthawewa. Fingerlings thus reared can either be sold to MFAR for stocking or to seasonal tank fishermen. SLCDF has also planned to start a few pilot projects in Hambantota district before the end of 1996.

Chapter 3 DEVELOPMENT CONSTRAINTS AND PROSPECTS

3.1 Development Constraints

3.1.1 Marine fisheries

Marine fisheries are faced with inadequate knowledge of the resources, low levels of skills and technology, and insufficient infrastructure such as harbours and anchorages, and inadequate shore facilities such as ice plants. Some of the problems faced by the fishery harbours and major anchorages are summarized in Table 3.1. The existing fishing fleet structure distinctly reflects an over-concentration of coastal fishing boats. Of the total operating fishing craft (28,895 in 1995), a large number (about 90%) are non-mechanized and single-day small motorized craft. The problems and constraints are summarized below.

(1) Problems and constraints in regard of the coastal fishery are firstly the over-utilization of certain fishing methods and gear, e.g. gill nets, and the difficulties in purchasing input such as fishing gear of popular mesh size, and engine spare parts at fishing centres. In some areas, fishermen have no places to repair their engines. The engines have to be taken to workshops far away from their operating bases, resulting in a loss of fishing time. In many areas there are no service centers or shops, stocking these items. Where these are available, prices are exorbitantly high.

(2) Constraints and problems in off-shore fishing are related to structural and lay out modifications of fishing boats and gears. A wider beam and high freeboard of the boat offers stability and a sense of security to the fishermen, but not the general arrangement of fish hold and crew accommodation. For a boat staying out at sea from four to 10 days, adequate bunks for comfort is necessary. Fish hold should have a larger capacity (40-50%) to cater for increased catches during peak periods. In addition the fuel and water tanks installed do not provide sufficient capacity to extend fishing time. Often boat owners find it difficult to get spares at fishing bases. Another major problem is the lack of basic communication and safety equipment on these vessels. Boats subjected to engine failures and natural causes such as storms, winds and waves are unable to contact other boats or shore rescue centres. Often fishermen steam several hours before they lay their nets. If good catches are obtained they are unable to fix the location and communicate the findings to other fishermen. Emergency position indicating beacons, or other basic life saving equipment are not available in the boats and most fishermen who venture into off-shore fishing have not received training in navigation, seamanship, and safety.

(3) The "open gate policy" of the previous administration has led the on-shore buildings and facilities in fishery harbours to ruinous conditions with no maintenance or management. Most facilities such as ice plants and workshops have been leased to the private sector at low rents. The lack of maintenance is attributed also to the absence of harbour charges, which obliges CFHC to rely exclusively on the Government to fund all its capital, operation and maintenance costs.

(4) Some harbours have been completely silted up. Anchorages, located in the lagoons or estuaries, have entrances that are difficult for fishing boats to cross during some months of the year because of sand bar formation.

(5) The generally poor state of the landing facilities has prevented their optimum utilization by a large number of boats, especially by large multi-day boats, resulted in substantial delays in turn-around time and consequent losses in fishing productivity and output. The severe physical constraints and poor conditions at existing landing facilities have discouraged private sector multi-day fishing boat operators from improving their efficiency and productivity. It is also preventing private sector willingness to invest in export oriented deep-sea fishing.

(6) Non-availability of ice is a constraint in certain areas. Lack of clean water, and sheltered and paved areas for handling and display of fish is an impediment to the improvement of the quality of fish. Inadequate basic services and the poor condition of tertiary roads that connect landing sites to the main roads are the key deficiencies of the fish marketing system.

(7) The present system for collecting and compiling marine and inland fisheries statistics does not appear to be adequate for a continuing assessment of stocks. There is also no system of monitoring fish production especially from the off-shore areas which are attracting increasing number of vessels.

3.1.2 Inland fisheries

Constraints to inland fisheries are listed below.

(1) Non-stocking of perennial water bodies, suspension of extension and training programmes, and stoppage of producer subsidy to inland fishermen as a result of the withdrawal of state patronage for inland fisheries, have resulted in the decline of production of freshwater fish.

(2) The fish breeding stations that were leased to the private sector had not been utilized for their intended purpose. Most of facilities have been destroyed or sold, and buildings and ponds were in ruinous conditions when the Government took them over under the new policy.

(3) The Aquaculture Development Division created in MFAR in October 1994 is now facing a serious shortage of skilled staff.

(4) The Udawalawe Inland Fisheries Station was brought under the management of Aquaculture Development Division with a view to producing fish seed and making them to play a catalytic role in inducing fish seed production in the fish breeding stations leased to the private sector. However, the station is facing shortage of equipment and pond facilities as the half of its pond facilities are under lease to a private firm which is using them only for ornamental fish production.

(5) Lack of appropriate technology is a major constraint to develop export oriented aquaculture systems such as marine fish culture, oyster farming, crab culture, etc.

3.2 Development Prospects

3.2.1 Marine fisheries

(1) According to the NARA's review of fisheries resources under the ADB fisheries sector study, the present yields of small pelagics (herring, sardines, anchovies, mackerels, barracudas, scombrids and carangids) mainly in the coastal water are very close to the maximum, and sustained increase in yields would not result from increasing the effort. The fishery for large pelagics (tunas, billfish and sharks) found both in the coastal and offshore has developed dramatically and is expected to expand further, especially for yellowfin and skipjack. Demersal fishery (snappers, groupers and breams) is mainly conducted in the trawlable area of the continental shelf which is about 6 % of the EEZ of the Country In Southern Area entry of large boats is highly unlikely in view of narrow, uneven shelf with limited trawl grounds. Demersal fishery will probably continue to remain secondary and seasonal.

(2) The Government has built fishery harbours and related facilities including on-shore facilities with substantial amount of loans and grant aid. These facilities are in ruinous conditions with no maintenance or management. Rehabilitation works are underway at the initiatives of the Government; these facilities should be effectively put to use for increasing fish production.

(3) Approximately 70% of the national coastal sector fish production came from the Northwestern, Western and Southern provinces and the remaining 30% from the north and the east. Due to disturbances in the north and the east, the supply of fish has drastically declined. Therefore, it is essential to develop the marine fisheries in Southern Area in order to have stable supply of fish.

3.2.2 Inland fisheries

(1) There exist considerable prospects for increasing production in the sector of inland fisheries. Firstly there is the availability of substantial areas; there are approximately 14, 980 ha of water bodies in Southern Area (Table 3.2), where the cultivation of fish can be undertaken without the need for any intensive effort.

(2) Secondly, because of their seasonality, with the catchment area being used for cattle grazing, these tanks are fertile for production of fish, particularly as water accumulates, and a variety of fish food organisms develop, presenting a ready source for increasing fish production relatively easily.

(3) The two inland fisheries stations in Southern Area would support the activity through the production of fry and fingerlings and assist in the extension and training for rural farmers.

(4) Past performance at inland fish culture and fingerling production was good till the stoppage of state patronage. Therefore, the main constraint is not technological but institutional and the unavailability of trained staff in adequate numbers.

Chapter 4 OBJECTIVES, STRATEGY AND MEASURES

4.1 Development Objectives

Objectives for fisheries development in Southern Area may be defined as follows:

- To promote optimal production of marine fisheries which would improve nutritional status of the population, as well as reduce poverty and increase income opportunities particularly for the rural poor through effective use of the fishery habours and anchorages and service facilities, and
- To increase freshwater fish production which would serve as cheap source of protein for the rural poor as well as increase employment and income opportunities through effectively use the existing perennial and seasonal water bodies.

4.2 Development Strategy

(1) Marine fisheries

The Government clearly recognizes the importance of the fisheries sector to the national economy, nutrition and employment, and has set out a number of broad development policies for sustainable exploitation of the resources and the protection of coastal and inland resources. They include introduction of modern technology in the production sector and provision of appropriate infrastructure such as harbours, anchorages, and feeder roads, upgrading of fishermen's and processors skills, protection of Country's EEZ, development of aquaculture, diversification of exports, provision of incentives to processing and the implementation of welfare schemes for fishermen.

The National Fisheries Development Plan (1995-2000) stipulates the following:

- reliance upon the private sector to generate all the anticipated production gains, distribution and marketing;
- research and training to be undertaken for the production sub-sector;
- restructuring of fishermen's cooperatives to provide sufficient services and to generate social gains in the traditional small scale sector; and
- strategic investments by the public sector in harbours and anchorages and social facilities for the small scale sector and provision of extension, research and training.

In line with these policies, the overall strategy for marine fisheries in Southern Area should consist of the following.

1) Rehabilitation and repair of quayside/breakwater and on-shore facilities of the existing fishery harbours (Galle, Mirissa, Puranawella and Tangalle) shall be undertaken. The public sector should provide harbour services and undertake management and maintenance of the harbours. The private sector undertakes production and marketing, supply of fuel, ice and other input and services.

2) Rehabilitation and upgrading of anchorages will be required in order to ease congestion in the fishery harbours by small boats. With the emphasis on increasing production from offshore by multi-day boats, more multi-days boats are expected to be introduced. Therefore, major anchorages should be identified and upgraded for small boats and day-boats.

3) Ample area should be allocated within the harbour with access road and other infrastructure by the state for lease to the private sector investing in ice plant and cold store, fuel storage, boat repair, auction hall and net mending shed, etc.

4) Operation and maintenance of the harbour facilities should be undertaken by the Government and proper user fee be collected to cover O&M cost. Currently a pilot study is underway under the ADB Fisheries Sector Project.

5) The number of multi-day boats is expected to increase targeting at large pelagic fish (tuna and bill fish) in the EEZ. Specific training for skipper and crew in seamanship, navigation, safety and survival at sea is necessary.

6) The Tangalle Fisheries Training Center should be rehabilitated and fully equipped for training of skippers, crew and technician.

7) Licenses for deep-sea fishing joint ventures with foreign fishing vessels are issued by MFAR under an agreement that they fish beyond the EEZ, land fish not suitable for export (grades 2 and 3) in Sri Lanka, and utilize the fishery port facilities. These arrangements for the licensing to land fish in Sri Lanka are providing very limited benefits and encourage illegal fishing within the EEZ. The foreign fishing vessels agreement should be phased out and Sri Lanka's investors should be encouraged to fish in deep-sea, process and market overseas, thus ensuring value added.

(2) Inland fisheries

The abrupt withdrawal of state patronage in 1990 resulted in the collapse of subsidies and community based infrastructure, including many cooperatives. The policy implemented

immediately, including transfer of facilities to the private sector on lease, did not allow sufficient time or resources for smooth transfer of fish aquaculture and technology to the private sector or to the fishing communities. The private sector lease holders adapted the inland fisheries stations and infrastructure to breeding of ornamental fish which require minimum input and technology. Hence, inland reservoirs and perennial tanks had not been stocked since 1990 till mid 1995. The seasonal tank fisheries had completely collapsed due to unavailability of fingerlings.

The overall development strategy for inland fishery would consist of the following.

1) The Udawalawe Inland Fisheries Station, which the Government took over under the new policy in 1994, are currently being rehabilitated and repaired. Additional measures include the following:

   a) to enhance and accelerate the rehabilitation and strengthening of the station which is ideally located in Southern Area,

   b) to repair buildings, ponds (mud and concrete), provide farm equipment and machinery, and provide laboratory equipment and other relevant facilities,

   c) to recruit and train staff for research, training and extension, and

   d) to increase production of fingerlings for stocking of perennial tanks and reservoirs.

2) The Murthuwela Inland Fisheries Station is under lease to the private sector. It is also ideally situated in Southern Area, and some of the facilities are planned for breeding and culturing of Chinese carp and major carp. However, they are used for ornamental fish rather than for producing food fish fingerlings. The buildings, ponds and other facilities are not well maintained. The following shall be undertaken:

   a) to rehabilitate/repair the buildings and ponds in order to use optimally or effectively the existing facilities for breeding and production of food fish fingerlings, and

   b) to encourage lease holders to meet minimal and mandatory requirements of the lease arrangements to produce fingerlings through incentives such as provision of basic technology or inputs for fingerling production.

3) Perennial and seasonal tanks are considered common property resources (CPRs) and make valuable contributions to the rural poor and other inland fishing populations, which rely very heavily upon the CPRs for the employment and subsistence. There are historical references that inland fishing was an organized