

SOCIO-ECONOMIC PROBLEMS IN MAJOR IRRIGATION SCHEMES IN SRI LANKA

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AN OVERVIEW

Sri Lanka's history has been developed around what is now called a "hydraulic civilization" and the tank, the village and the temple (dagaba) have been the symbols of Sinhalese Civilization. The economic base of this civilization was the cultivation of paddy; and cultural-political relations and a way of life developed around this central economic activity. In fact, in the Mahaweli, Walawe, Gal Oya, Ingimitiya, Kirindi Oya, Muthukandiya hydraulic programmes apart from the village irrigation programme paddy is the economic base of development. The major irrigation systems of the past such as Minipe in the Kandy District, Elaheera in the Matale District, Parakrama Samudraya in the Anuradhapura District, Padaviya in the Vavuniya District, Kantale in the Trincomalee District, Nuwara Wewa and Tissa Wewa in the Anuradhapura District, have been the work of ancient Sinhalese Kings who utilized the in born indigenous hydraulic engineering and irrigation skills to plan and construct these massive reservoirs with precision which are amazing even to modern scientists in the field.

The hydraulic network consisted of what is now known as the major irrigation schemes and minor irrigation schemes.⁽¹⁾ An irrigation system with a command area of more than 200 acres is considered a major scheme and that below 200 acres is considered a minor irrigation scheme.⁽²⁾ Since minor irrigation has already been examined earlier (Ibid Economic Review Sept, Oct/Nov 1982) this study will focus attention on major irrigation schemes

only. Also operation of government sponsored lift irrigation schemes,⁽³⁾ which commenced only in the 1960's will not be examined. However, certain general observations which are common to the three systems will be mentioned.

Most of the major irrigation systems are located in the Dry Zone of the country. It is not surprising, therefore, that the original but ancient Sinhalese political, administrative, social and economic activity centred round rivers in the dry zone eg. Anuradhapura, Polonnaruwa Capitals followed the Mahaweli river, for instance, Gampola and Kandy Kingdom. From about the 13th century the Dry Zone Civilisation began to collapse due to several Chola invasions, widespread incidence of malaria, disunity among the ruling classes, and destruction of irrigation systems. However there are many accounts of the desolation that overtook the dry zone after the collapse of the hydraulic civilization. After several centuries of neglect, the restoration and resurrection of ancient and abandoned irrigation schemes and the revival of an agricultural system based on irrigation started receiving some attention from the British Governors, especially in the 1850's during the time of Governor Henry Ward.⁽⁵⁾ The objective of irrigation development at that time were two fold.

- (a) increasing rice production
- (b) reducing unemployment in the rural areas by restoring village irrigation works.

The 1930's was a decade that witnessed the launching of a massive effort at irrigation based colonization schemes which are in fact land development cum human habitation schemes supported by the development of essential infrastructure facilities. Political developments that took place in Sri Lanka in the 1930's contributed substantially towards the evolution of a policy of vigorous irrigation development. Sri Lanka was granted limited self rule by the British in 1931 under the Donoughmore Constitution. Under this constitution, universal adult franchise for all adults of both sexes, linked to geographically demarcated electorates were introduced. This meant that the local politicians aspiring for seats in the legislature had to woo the mass of rural voters. There were three things that had considerable popular appeal - the development of irrigation, the alienation of state land and the settlement of people. The Donoughmore Constitution, provided a system of Executive Committees to conduct national policy and the late D.S. Senanayake became the first Chairman of the Executive Committee of Agriculture and Lands. Senanayake was dedicatedly and deeply committed to the restoration of the ancient glories of Sri Lanka and especially the Dry Zone of the country.⁽⁶⁾ The philo-

1. Ariya Abeysinghe: Minor Irrigation in the Agricultural Development of Sri Lanka: Economic Review, September 1982, Oct./Nov. 1982, People's Bank, Colombo 2, Sri Lanka.
2. Socio-Economic Survey of Minor Irrigation in the Dry Zone of Sri Lanka- J.M. Gunadasa at al University of Peradeniya, '80 (mineo)
3. ARTI Study and Agro-skill study on Lift Irrigation System 1970.
4. Ariya Abeysinghe: Ancient Land Tenure to Modern Land Reform. Vol. I & II Centre for Society and Religion, Colombo 1974, 1979.
5. Balasingham - Administration of Sir Henry Ward-Ceylon Historical Journal XI. Colombo.

sophy of the new Tenurial and Colonization policy was to "bring into existence a prosperous self supporting and self respecting multitude of peasant-proprietors". (Ibid p. 17). In this philosophy and policy, the restoration and development of the hydraulic systems of the past became a matter of central concern.

These land and irrigation policies, since the 1930's, have been sustained and developed even to the present day, a period of well over a half a century. The irrigation and land development policies of the time can be seen through a study of the early human habitation schemes in Minneriya in the Polonnaruwa District, and Nachchaduwa and Kalawewa in the Anuradhapura District. These systems were developed primarily for paddy cultivation in the valley bottoms below the reservoir where the bulk of the soil was low humic clay. From then until the early 1960's nearly 1/5th of the state's annual allocations for capital expenditure were devoted to the development of the major irrigation schemes. Between 1948-1970 the Gal Oya River Valley project covering 122,000 acres and the Uda Walawe River Valley project covering 31,000 acres were undertaken mainly for rice cropping and additionally for sugar cane and cotton; the latter recording complete failure. During the 1960's the state investments in irrigation and land development was about 36% of the capital budget allocated to the agricultural sector. By the late 1960's nearly all the major ancient irrigation works had been restored and three new projects namely Gal Oya, Rajangana and Uda Walawe had been virtually completed.

The 1970's and 1980's saw the launching of the Accelerated Mahaweli Project. Kotmale (1985), Victoria (1984), Maduru Oya (1983), Uthitiya (1982) headworks were completed

with Randenigala headworks expected to be completed in 1986. Meanwhile System H and System C command areas, infrastructure and settlement work is being completed and action being taken regarding Systems G, B, and C. The Mahaweli River Development Programme originally studied by the UNDF/FAO in 1968 as a Master Plan envisaged to develop 240,000 acres of existing land and 660,000 acres of new land, making a total of 900,000 acres. Originally this acreage was to be developed for irrigation over a 30 year period along with 660 MW of hydro-power. During the period 1970-1977 the major focus of investment and attention was the diversion of Mahaweli, which was to initially improve irrigation facilities for double cropping in 124,000 acres of already irrigated land and provide irrigation facilities to 6000 acres of new land. From 1977 greater attention was given to land and irrigation investments with the divorce of Lands and Lands Development from the Ministry of Agriculture and Lands and the establishment of two separate Ministries-Ministry of Lands and Land Development and the Ministry of Mahaweli Development which was a turning point for the growth of land development and settlement policies and the Mahaweli Project.

The late 1950's saw a greater interest in the irrigation and the land development policies of the government when these policies were critically examined, even in the Government planning documents *The Agricultural Plan (issued by the Ministry of Agriculture and Food) of 1958; the Short Term Implementation*

Programme (issued by the Department of National Planning) of 1962 are two such two examples. The recurrent price and exchange fluctuations of the three major commodities, amidst a large volume of imports, without much effort to enhance local food production created serious foreign exchange difficulties. This made it difficult for the government to bear the heavy burden of welfare services provided by the State. Hence, greater attention was focussed on enhancing production where possible whilst creating new employment especially in land development and irrigation projects, for which a large slice of public expenditure had been deployed regularly over a long period of time but with low returns.

Simultaneously, these projects began to be evaluated from the point of view of cost-benefit, and portfolio analysis techniques began to be applied in the study of such schemes. *The FAO/IBRD Cooperative Programme Mission of 1964* was followed by a study of the *Gal Oya Project by an Evaluation Committee chaired by B.H. Farmer* (Vide: Sessional Paper No. 1.1970). They concluded that the Gal Oya project had a poor benefit-cost ratio of the colonization element (p.104). The FAO/IBRD Mission of 1964 was followed by the Peppersak Mission which recommended the establishment of 24 major irrigation and settlements projects following on the success achieved in the Elahera Special Project. By about 1979 special projects were collapsing from their initial success because their initial momentum could not be maintained. A writer pointed out later that the reason for the slowing down of the

6. D.S.Senanayake: Agriculture and Patronism, Colombo, 1935.

Joe Alwis: "Water Management in Major Irrigation Schemes" in Land Experience in Sri

momentum in special projects and their subsequent closure was that there was little or no appreciation by the officials that irrigation water was a critical input in the production process.

The special concern of the government and the country with the performance of major irrigation systems at the present time has arisen on account of several important considerations, namely:

- (a) The Accelerated Mahaweli Programme - this programme provided additional or new irrigation facilities at great cost to large geographical areas of the dry zone and a large number of farm families.
- (b) Increasing paddy production and attaining self-sufficiency with new hybrid varieties, irrigation facilities, fertilizer, agro-chemicals, storage, price stabilizing and marketing policies..
- (c) The emphasis on the cultivation of other food crops (subsidiary food crops chillies, onions, pulses, oil seeds etc.) as an import substitution strategy and later as an export oriented strategy, receiving greater attention in Maha season based on rainfall and Yala in paddy fields using irrigated waters.
- (d) The greater interest in crop diversification on the major irrigation schemes and to conserve and optimize water usage. (eg. Chillie economy in the H System of Mahaweli Area)
- (e) The revival of the interest in developing suitable livestock development programmes.

Whilst these objectives were being pursued in the agricultural sector serious socio-economic problems (discussed later) began to emerge in the Major-Irrigation Schemes.

Current Policy Framework and Implementation in the Land and Irrigation Sectors

Between 1950-1982, a period just over 30 years the total investments in irrigation, (except Mahaweli Programme) including minor village works, major schemes and river basin development has been approximately

over Rs. 20,000 million consisting of:
Minor Irrigation Works - Rs. 609.5 million

Major Irrigation Works - Rs. 2441.9 million.

River Basin Development - Rs. 9190.6 million.

70.13% of the total expenditure over 1950-1982 was spent during 1980-1982 showing the greater emphasis by the government on irrigation.

The following general observations can be made on the above statistical data.

Year	Minor Irrigation (Rs mn)	Major Irrigation (Rs mn)	River basin (Rs mn)	Total (Rs mn)
1950-1954	16.4	171.9	84.7	273.0
1955-1959	11.0	133.8	35.3	180.1
1960-1964	6.4	153.6	15.3	175.3
1965-1969	23.3	245.3	20.4	289.0
1970-1974	70.4	175.0	280.7	526.1
1975-1979	196.6	362.0	1654.2	2212.8
1980-1982	285.4	1200.3	7100.0	8685.7
1983-1983	n.a.	n.a.	n.a.	n.a.

Year	Major and Medium Irrigation Schemes (All Lands - Acres)	Total Investment	Minor Schemes (Acres)	Total Investments
1954-1964	96,000	Rs. 338m.	77,000	Rs. 17.4 m.
1965-1969	81,130	Rs. 265.7	26,707	Rs. 23.3 "
1970-1974	78,119	Rs. 455.7	60,666	Rs. 70.4 "
1975-1979	180,729	Rs.2016.2	206,293	Rs.196.6 "
1980-1982	45,672	Rs.8300.3	84,296	Rs.285.4 "

Year	Major and Medium works		Minor Irrigation		Total	
	New Extents	Ex.Iand	New Extents	Ex.Iand	New Extents	Ex.Iand
1954-1964	96,000	-	77,000	-	173,000	-
1965-1969	71,081	15,049	6,611	18,096	79,692	33,146
1970-1974	62,763	15,356	12,571	48,096	75,334	63,451
1975-1979	37,809	142,920	31,690	174,603	69,499	317,523
1980-1982	32,684	12,988	26,902	57,394	69,586	70,382
Total Increase	300,337	186,313	163,774	298,188	467,111	484,501

- (i) The total cumulative acreage that benefitted from irrigation was 941,612 acres.
- (ii) The total existing lands benefitted was 484,501 acres.
- (iii) The total "new extents" that benefitted was 457,111 acres.
- (iv) The total cost of providing irrigation waters was Rs. 12,242 million.
- (v) The average cost of providing irrigation facilities per acre between 1950-1982 was Rs. 0.0130 million of which major irrigation facilities cost on an average Rs. 0.00131 million.

The greater emphasis on the rehabilitation of major irrigation schemes including the Mahaweli arises from the need to have a greater impact on the agricultural sector by way of increased acreage under cultivation and creation of employment in the rural sector. These schemes tend to be adaptable to modern hybrid seed utilization etc. since the reliability of water supply is assured compared to the minor village irrigation which have a limited command area and the rate of returns on investments is rather low due to various factors. Another reason for the comparatively low investments in minor irrigation arises from the fact that the subject of village irrigation has been regularly transferred from Ministry to Ministry. Since the Water Resources Board and Irrigation are under the Ministry of Lands and Land Development, it may be worth considering intergration of several bodies including minor village irrigation under a single authority under the Ministry of Lands and Land Development in what may be called Water Resources and Deve-

lopment Authority with separate entities to look after each area of responsibility.

SOCIO- ECONOMIC PROBLEMS

Through a slow and hesitant path, policy makers have come to realize that there are acute technical, managerial, social and economic problems in nearly all the major irrigation systems in the island; and unless they are resolved or contained within certain limits, these schemes will not be able to contribute to national growth as envisaged. With the enormous funds now injected into the Mahaweli Development Project it is doubtful whether in the foreseeable future there is a possibility of diverting a significant amount of capital and recurrent expenditure to constructing and maintaining large irrigation schemes. Hence, in this context, it is only rational policy to have a good understanding of the socio-economic problems in all major schemes and find ways and means of finding short, medium and long term solutions for them.

UNEMPLOYMENT AND UNDEREMPLOYMENT

Employment is a problem among the second and third generation children of settlers who have not been able to move out into off-farm and non-farm employment. The original settlers have not been able to generate a net surplus through agricultural activities to enable the younger-generation to be provided with meaningful avenues of livelihood. This is true of all the major schemes and undoubtedly it will spread to the Mahaweli project areas as well. Some attempts to tackle this problem are being attempted by the Mahaweli Development Authority through its Entrepreneurial Development and Community Service Unit-

which has recently been shifted from the Mahaweli Economic Agency to the Authority. Since entrepreneurial development cannot be divorced from marketing it is necessary to link investment and marketing into one unit to enable the establishment of agro-based and non-agro-based industries. They include agricultural commodity based and agro-waste based industries (like soya bean products including soya oil, rice based products like rice sticks, rice wine, rice bran oil, rice bran poultry products, rice noodles, rice flour, straw based paper manufacture, straw board, paddy husk board, husk briquettes to substitute for firewood, chillie oleoresins, chillie powder, chilly oil, chilly sauce, packeted chillies, washed and ready to cook packeted rice, black gram, soya bean sprouts, green gram and cowpea dhal, green chillies for export, ground nut oil, ground nut butter, livestock feed, are other agro- industrial possibilities. There are a whole range of livestock development projects from hatcheries and poultry to milk production.

Agro-Waste based industries (include rice bran oil, yeast manufacture from sugar manufactures from brewery waste, pineapple waste as base for vinegar)- are other possibilities. There are still others in agricultural machinery, tools and equipment manufactures (like ploughs, seeders, weeders, sprayers, assembly of two wheel tractors, bee boxes, fabrication of steel buckets, mamoties, agricultural tools, storage bins for on farm storage of commodities). Another area of investment possibilities are in input and service industries bulk breaking of fertilizer into farmer packs, commercial seed production, irrigation structures, agrochemical bottling using imported already formulated agro-chemicals, barber saloons, welding centres, vehicle repair shops, feed mill and packaging industries.

To be continued.