Sri Lanka: Mahaweli Ganga Development

Development of the Mahaweli Ganga has been a centerpiece of Sri Lanka's development thinking for 35 years. Formal work on the Mahaweli Ganga Development Program started in 1958 and a 30-year master plan was formulated in 1964-68. The program has been expected to provide, and in large measure has provided, employment in construction, land for the landless, food, and electric power, together with an appealing focus for foreign assistance.

The World Bank extended IDA credits for a series of projects that supported the Mahaweli Authority, which managed the program. Though the Bank provided relatively little money (6.2 percent of the total funding for Mahaweli by 1990) it played an active role in advising on the size and composition of the Mahaweli program and in coordinating external assistance.

OED recently audited the third of the Bank-assisted projects, which was executed in 1982-92. It finds that the project was soundly conceived and well, if slowly, executed, assisting large numbers of poor families. But environmental aspects were neglected. And economic returns were much lower than expected, due partly to a long delay in implementation and partly to a dramatic fall in the price of rice to producers. The audit draws lessons.

During the 1970s Sri Lanka’s annual growth of agricultural production fell behind that of population. Real per capita GDP declined by 1.3 percent a year and open unemployment increased. The new more market-oriented government elected in 1977 accelerated the development of the Mahaweli Ganga Development Program.

Project goals

To assist the accelerated program, the Bank-assisted Third Mahaweli Ganga Development Project was approved in 1981; a credit of $90 million supported a total project cost of $200 million. This was an archetypal integrated rural development project, which started from raw jungle to provide productive investments and all social infrastructure and services for a population projected to reach about 180,000. The project was expected to produce 186,000 additional tons of paddy, with significant volumes of other crops. Most importantly, it would provide land to the landless, and relieve population pressure.

Before development most of the project area was virtually unpopulated, but population pressure from the wet zone (southwest and central highlands) was leading to increased immigration, with associated shifting cultivation. The project involved jungle clearing, land leveling, and on-farm development over a gross area of about 31,000 ha, and settlement of a projected 18,500 families each with 1 ha of irrigated land and a 0.2 ha homestead plot, as well as 5,500 nonfarming families, also with homestead plots. The project also provided for fuelwood (3,000 ha) and cashew plantations (2,000 ha). The Mahaweli Authority provided support services such as extension, marketed inputs and outputs, and operated and maintained the irrigation system. It installed roads, urban centers, and social infrastructure including schools.

Implementation

Implementation took twice as long as originally planned. The cost of Rs. 8.45 billion ($263 million) was about 30 percent higher, in real terms, than originally budgeted.

The proposed project size and phasing were too optimistic, given the experience with earlier phases of the scheme and the capacity of the implementing agency. The schedule at appraisal called for jungle clearing at around 5,300 ha/year, on-farm development at 5,700 ha/year, and settlement of 5,500 farm families/year. The

* "Performance Audit Report, Sri Lanka: Rehabilitation and Development Projects", Report No. 13835, December 1994. Performance audit reports are available to Bank executive directors and staff from the Internal Documents Unit and from Regional Information Services Centers.
Land sales to settlers were deferred. Settlers did not receive title to their land. The project design provided that the cost of land improvements was to be recovered by sale of the farm and house plot given to each settler, and that settlers would receive clear title to their land. But no payments have been made by settlers and ownership rests with the government.

Farmers remain dependent on the government. Most farmers, and especially those in the most recently settled areas, still depend heavily on government initiatives and services.

Maintenance has been inadequately managed and funded. Operation and maintenance arrangements are deficient and the irrigation facilities built under the project face premature deterioration. Though it actively provided support for farmer organizations, the project had limited success in transferring management responsibility to farmers for planning water use and cooperating to maintain the distribution system.

Water charges were collected from farmers at first, covering about half the cost of operating and maintaining the irrigation facilities. But cost recovery was abandoned as farm incomes turned out to be lower than expected. Collections fell from 90 percent of the amounts due in 1985 to 25 percent in 1989 and 5 percent in 1990. Farmers’ organizations have willingly contributed labor for cleaning and for minor maintenance of distributor and field canals, but have not supplied even small amounts of cash for needed hardware. (The same pattern was observed in the recently audited Village Irrigation Rehabilitation Project in Sri Lanka.) As noted by the project completion report on this operation, government maintenance budgets have been used mainly for salaries.

### World Bank (IDA) assistance to Sri Lanka, to June 1994

<table>
<thead>
<tr>
<th></th>
<th>$milions</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigation</td>
<td>244</td>
<td>13</td>
</tr>
<tr>
<td>Mahaweli</td>
<td>158</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>86</td>
<td>5</td>
</tr>
<tr>
<td>Other agriculture</td>
<td>267</td>
<td>14</td>
</tr>
<tr>
<td>Total agriculture</td>
<td>511</td>
<td>27</td>
</tr>
<tr>
<td><strong>All sectors</strong></td>
<td><strong>1,863</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Implementing agency was already overstretched, and the project posed new technical and organizational issues. Many agency staff were newly recruited and were working with contractors from a recently emancipated private sector. Civil unrest caused disruptions.

Delays in providing water to cleared land led to problems with spontaneous settlement and to jungle regrowth. As designed, the project gave priority to farmers displaced from areas flooded by other parts of the Mahaweli scheme. It did not foresee that these involuntary resettlers—and also refugees from civil disorder—would arrive before enough irrigated land was ready for distribution. Some would-be settlers had to be accommodated for two years before they could be assigned land; the World Food Program played a major role in feeding them.

The relationship between the borrower and the three cofinancing agencies—Japan’s Overseas Economic Cooperation Fund, the Kuwait Fund, and IDA—was generally satisfactory. Project managers responded well to advice provided by Bank supervision missions, which was relevant and realistic. The good relationships were especially helpful in maintaining activities through periods of civil unrest in the project area, and in agreeing the four extensions of the credit closing date.

**Results**

The project achieved close to its targets for physical works, numbers of beneficiaries, and rice production. It provided irrigated farms to 16,136 settler families (87 percent of the number estimated at appraisal) at a total cost of $17,350 per irrigated farm. This gross cost includes forest clearing, irrigation works, roads, social infrastructure, supporting towns, and more than 2,000 families who were settled without irrigation. Jobs were created for 8,000 landless families. Training under the project upgraded the technical competence of project staff and farmers.

The project significantly expanded the land available for paddy production. By 1993, allowing for double cropping, the project was contributing 122,000 hectares of paddy from about 100,000 ha of new arable land formerly under forest. Additional rice production is estimated at 145,000 tons, or 95 percent of the appraisal estimate.

Incomes were much lower than expected. The project turned out to be unsatisfactory in economic terms, less because of poor design, or poor implementation, but because the terms of trade shifted against rice production.

The present income of farming settler families is about twice their estimated “without project” income. This is much lower than the five or sixfold increase projected at appraisal.

April 1995
Issues and lessons

Speed of execution. The accelerated program was an idea that energized all parties. Recruitment of some of the "best and the brightest" from national line agencies was meant to speed up implementation. But in practice the staff appraisal report was overoptimistic in projecting what could be achieved by an overstretched organization facing new technical issues. Elsewhere in Sri Lanka, as the project completion report pointed out, budgetary pressures forced the national extension service to employ fewer, better qualified staff, but the Mahaweli Authority retained a large number of low level, poorly qualified field assistants. Staffing difficulties made it necessary to hand over responsibility for public safety, education, and health to the relevant line ministries.

Ultimately the rate of farm development in the project area seems to have been determined as much by factors outside the control of project staff as by those within their competence. Civil strife, credit problems, poor availability of suitable varieties of paddy, and lack of area-specific fertilizer recommendations are all nationwide concerns.

Farmers' organizations. Farmers in the project area will need to take more responsibility for their own affairs and play a greater role in managing the irrigation system. Project design and government administration of services can help make farmers' organizations more effective, but village dynamics and the relations among the members have a more important influence (see Précis No. 85—ed.).

Environment. Environmental issues in this project were largely subordinated to the task of building the irrigation infrastructure. Mitigatory measures can have only a partial impact in a situation where so much land is to be cleared. But conditions on the Bank's credit called for an environmental action plan to be submitted for review and concurrence by the end of 1981 and to be implemented by March 1982. In fact a very unsatisfactory document was submitted in March 1983. Concerns expressed by the Bank's Environmental Advisor and Agriculture Department were not addressed.

Today, increased population pressure as a result of the settlement of nonfarming families and the children of original settler families is leading to encroachment on remaining forest areas for shifting cultivation or for fuelwood. Thus much more attention is needed to the management and protection of the remaining forest within the project area.

Cropping in unirrigated areas. The appraisal seems to have misjudged the suitability of unirrigated land for cashews. Even the highly permeable soils in the area get very waterlogged in the long rainy season. Possibilities demonstrated by an NGO for changing to mixed cropping, taking advantage of the different soil moisture regimes on the ridges, slopes, and gully bottoms, should be taken seriously.

Economic viability. By the early 1990s rice production was much less attractive than when this project was approved in 1980. The halving of the world price of rice was not foreseen by the Bank's commodities analysts. In part, it came from the increased supply of small grains that resulted from the Green Revolution, the Common Agricultural Policy of the European Community, and farming subsidies in other OECD countries.

For Sri Lankan rice producers, yields were reflecting most of the benefits of the Green Revolution by 1980. Yields rose little in the ensuing decade, while world paddy prices fell, but production costs per hectare rose steeply. The opening of the economy led to an increase in real wages. Fertilizer prices rose, following the abolition of subsidies. Using constant production technology, in 1980 paddy production costs accounted for 40 percent of the revenue from paddy production; by 1993 production costs accounted for 80 percent of the revenue (Table 2). In practice, farmers have been changing technology in response to the changes in prices.

In the light of the changed price ratios, it may now be difficult to design any new investment or national project that would yield a 10 percent economic rate of return on the basis of increased irrigation water for paddy production. Independent studies have warned that Sri Lanka cannot afford to provide much additional employment through schemes as capital intensive as the Mahaweli.
Other possible alternatives for assisting small and poor farmers are:

- Agricultural research (local or imported) to increase the genetic merit of rice plants.
- Diversification into higher value crops. While the Mahaweli Agricultural and Rural Development Project on Crop Diversification, funded by USAID, has not yet shown the successes first hoped for, this direction of public sector research should continue to be supported.

- Better education and assistance for entrepreneurial young farmers. Education, at least to the diploma level, of two young farmers per village would seem to hold the highest promise for increasing the dynamism of smallholder agriculture.