

LARGE SCALE IRRIGATION VS VILLAGE IRRIGATION

With funding now available from various international agencies, the pace of dam construction has accelerated dramatically since the second world war. By June 1985, about 32% of money advanced by the World Bank for agricultural development schemes has been for irrigation projects.

Food and Energy (Fuel) are two commodities in shortest supply within the Third World, and is it no wonder that so many developing countries now see large-scale irrigation as the touchstone of future prosperity. By supplying hydro-electricity, dams supply the power to progress and by providing water for irrigation, they will help boost food production and thus, it is argued, enable more people to be fed. Those benefits range from ensuring of potable water to creating jobs and controlling floods.

There is little doubt that at least some of those involved in building the massive 'water development' projects described sincerely believe that they are improving the lot of mankind. In 1975, for instance, the former Commissioner of the US Bureau of Reclamation, Gilbert G. Stamm, told a congressional committee: "Water resource projects have many positive environmental effects. When water management practices regulate and augment low flows of rivers and streams, decrease erosion, prevent floods, eliminate waste of water, and in many instances change deserts into gardens where man can comfortably live and prosper the result is betterment of environmental conditions.

But there is another side to the dam-building (large scale irrigation) coin, a side which the industry involved is less than keen to show off to the public. It portrays a picture of massive ecological destruction, of social misery and of increasing ill-health and impoverishment for those very people whom dams are said to benefit most.

These issues and their negative impact are raised eloquently in the following questions:

* How little of the extra food grown through irrigation schemes ever reaches those who need it most; how, in the long run, are those irrigation schemes turning vast areas of fertile land into salt-encrusted deserts; and how, too, is the industry powered by dams further undermining food supplies through pollution and the destruction of agricultural land?

* How many millions of people have been uprooted from their homes to make way for the reservoirs of large dams; how have their social lives been shattered and their cultures destroyed; and how, also, has their health been jeopardised by the waterborne diseases introduced by those reservoirs and their associated irrigation works?

* How much are dams now suspected of triggering earthquakes; and land slides; how have they failed to control floods and have actually served to increase the severity of flood damage; and how, have they in many instances, reduced the quality of drinking water for hundreds of millions of people?

* And, finally, 'how have the real beneficiaries of large-scale dams and water development schemes invariably been large multinational companies, the urban elites of the Third World, and the politicians who commissioned the projects in the first place?

* One of the most striking features of village irrigation systems is that they operate

on a small scale. By contrast modern irrigation schemes cover vast areas of land and are geared towards maximum production. In that respect, it is hardly surprising that their adverse ecological impact is greater than that of village (traditional) systems.

The size of the project is almost exponentially related to environmental impact: the area of fertile soil removal from annual production by flooding; the number of people displaced, and houses, infrastructure lost to the reservoir; and the opportunities for proliferation of aquatic disease organisms. (eg. malarial mosquito, filarial mosquito and schistocytis snail) and nuisance organisms. The large reservoirs trigger or exacerbate the perils of induced seismicity, and produce less fish per unit volume than small reservoirs. Moreover, water quality deteriorates gravely in large reservoirs which remain acceptable in small ones.

As shown in the citizen's report of India (1982) many states are unable to recover even working expenses from their large scale irrigation projects. Whilst the benefits of the massive investments have gone to the urban areas, the negative impact of such projects is mostly borne by peasants and the hill folk, whose daily lives depend closely on their immediate environment.

However, the large scale projects earn greater kudos for politicians and engineers alike: the more grandiose the the more prestige accrues to those involved in building it. So small scale irrigation is frequently seen as being 'uneconomic'.

Smallness does not in itself provide a fool proof insurance against ecological and social damage. Therefore environmentally sound careful planning and design, is a prerequisite.

(Adapted from 'The Social and Environmental Effects of Large Dams' by Goldsmith, E. and Hildyard, N. 1984).