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Otago Officials Committee on Irrigation
and Rural Water Supply

Dispatched.
By Hand.
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IDA VALLEY IRRIGATION SCHEME
REASSESSMENT

A comprehensive review of the Ida Valley irrigation scheme, the need for upgrading or improvement, and in particular the possibility of diverting water from Hopes Creek to supplement the limited supply available, has been under consideration for some years. This work has now been brought together in a ... Reassessment Report, a copy of which is enclosed for consideration by the Committee.

Existing Irrigation Scheme

The existing Ida Valley irrigation scheme, and the higher parts of the Galloway scheme which shares the same headworks system, rely almost completely on the long term storage provided by the Manorburn and Poolburn reservoirs for supply. In this respect the scheme differs from others in Central Otago which are based to a greater or lesser extent on run-of-river flows. Although this reliance on storage means the scheme is not subject to the same within-season and between seasons variations in flow, droughts extending over a number of seasons, and the ability of the reservoirs to equalise the long term mean flow, are critical.

With a nominal irrigable area of 5000 ha in the Ida Valley, and 600 ha within the Galloway scheme, the scheme is also large by Central Otago standards. For this reason, the generally reasonable condition of the physical works, and the high value headworks involved, I have always regarded the scheme as essentially very sound.

From the point of view of reassessment, the most important aspects of the scheme are probably as follows:

- 1 Trial work carried out by Gordon Cossens within the Ida Valley has clearly shown an average annual water requirement of 430 mm, and a slightly higher requirement in the Crawford Hills - Galloway area. History has shown that the net yield available from the Manorburn and Poolburn reservoirs is insufficient to meet these requirements partly because the storage capacity is not sufficient to fully control the cyclic pattern of high and low runoffs, and partly because the mean runoff from the catchments is insufficient. Water shortages have thus become a significant, although not accepted, factor in the operation of the scheme.

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2 The Bonanza race, which draws supplies from the Manorburn downstream of the storage dam, traverses very difficult country at a high level and has been a source of concern for some time particularly because of the high losses which occur. Improvements to the race over recent years have reduced losses very substantially but it is not known how long some of these works will last and there is need for further major expenditure. The condition of the Manorburn dam is also of some concern and, although repairs were made to one abutment some years ago, it is fairly essential to avoid spill over the crest.

3 The soils being irrigated are similar to those which will be served by the Maniototo scheme, and, with the relatively flat grades in the Ida Valley, both salinity and drainage problems have arisen. Extensive works have been carried out along the Poolburn which forms the main stream and drainage channel through the area but the water table tends to remain at a high level during the irrigation season. Low infiltration rates, and an underlying pan in places, further restrict drainage and water tends to fill deflation hollows or to lie causing rush infestation. However on the whole the farmers do not appear to regard these as significant problems and the high water table even has some advantages.

4 The limited or restricted water supply has resulted in relatively efficient use, and re-use, of water and to the recognition of the strategic opportunities associated with irrigation in this area. With water provided from storage rather than run-of-river flow, farmers tend to hold off irrigating until they can gain most benefit from the water. This in turn leads to a high efficiency in terms of the commodity produced per cubic metre of water supplied. However this type of use requires much tighter control on the operation of the scheme than does rostering, and hence increased costs.

Future of Scheme

Alternative courses of action available at this stage, their consequences and desirability appear to be as follows:

1 To abandon the scheme. Although this option must be considered with all these older schemes I do not consider it to be realistic or necessary in this case. In fact the loss of irrigation in the Ida Valley would have a very major impact on the farming of both the valley floor and surrounding hill country. This option is therefore not considered further.

2 Continue operating and maintaining the scheme very much as at present. The condition of the scheme, and the large irrigated area available to offset renewal costs, means that the current level of operation and maintenance should be sufficient to ensure the continuation of the scheme into the foreseeable future. Other than the Manorburn dam, which I consider need not be regarded too seriously, no potential failures are seen which the scheme could not sustain within an annual water charge of about \$25 per ha. The water shortage relative to the irrigated area would however remain.

3 Upgrading of the existing scheme on the basis of the existing source of supply. This would involve some capital improvement on the Bonanza race and on the remainder of the distribution system, and the installation of fixed flow baffle turnouts, at a total cost of about \$150 per irrigated hectare. However some reduction in the irrigated area would be necessary to ensure that a full service could be provided from the existing storages, a factor not likely to be treated with much favour by the farmers concerned. Between alternatives 2 and 3 there are of course various other compromises with emphasis on either bringing future maintenance forward as capital works or the balance between available resource and irrigated area.

4 Upgrading of the existing scheme with diversion of Hopes Creek to increase the water supply available. As shown in the reassessment report this is a very costly proposition but with the main cost in non-recoverable headworks it is likely to be attractive to the farmers. With a cost of about \$1400 per irrigated hectare the economics in national terms would not be as attractive. This option would ensure a full supply to the existing irrigated area and some small extension, at an annual charge of just under \$25 per hectare.

5 Recasting of the existing scheme completely around the existing storage plus Hopes Creek diversion. This would effectively involve the establishment of a new scheme with the major headworks expenditure proposed in the reassessment report, improvements to the distribution works, and reallocation of irrigable areas. With such a recasting it is envisaged that emphasis would be given to extension of irrigation of the better soils around the base of the hills, and that the use of water in the lower lying parts of the area would be restricted. In these latter areas deeper rooting species would have access to the relatively high ground water and it is felt that limited irrigation coverage would be sufficient. Obviously such a recasting would have to be accepted by the farmers and some difficulties are foreseen.

Recommendation

At this stage it appears that the best course of action lies somewhere between alternatives 4 and 5 above but further work is required to identify this in detail. It is accordingly recommended to the Committee that:

- (i) The reassessment report be received.
- (ii) Discussions be held with the farmers to ascertain the degree to which they would accept redevelopment of the scheme.


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