

Peru – Southern Andean Zone Irrigation Programme III

Ex post evaluation

OECD sector	31140/Agricultural water resources	
BMZ project ID	1993 66 170	
Project executing agency	Gobierno Regional Inka - Proyecto Especial Regional Plan de Mejoramiento de Riego en la Sierra y Selva (Plan MERISS-Inka; PMI)	
Consultant	CES Salzgitter	
Year of ex-post evaluation report	2009	
	Project appraisal (planned)	Ex-post evaluation (actual)
Start of implementation	Q 1 1997	Q 3 1998
Period of implementation	5 years	6 years
Investment costs	EUR 10.2 million	EUR 12.0 million
Counterpart contribution	EUR 2.53 million	EUR 4.33 million
Financing, of which Financial Cooperation (FC) funds	EUR 7.67 million	EUR 7.67 million
Other institutions/donors involved	GTZ (cooperation programme)	GTZ (cooperation programme)
Performance rating	2	
• Relevance	2	
• Effectiveness	3	
• Efficiency	3	
• Overarching developmental impacts	2	
• Sustainability	2	

Brief description, overall objective and programme objectives with indicators

The programme was designed to promote smallholder irrigation farming in the southern Andean zone of Peru. It was implemented from 1996 to 2002 in cooperation with GTZ and DED. The overall objective of the programme was to raise operating income to reduce rural poverty (indicator: increase in real operating income by at least 20%, 5 years after completion of the individual projects). The programme objective was the sustainable, efficient use of installed irrigation facilities and with that the intensification and expansion of agricultural output (indicators: 3 years after completion, operation and maintenance is assessed as good to the criteria of the M&E department of the executing agency; rise in yield by at least 20% after 5 years; tangible shift of cropping plans towards products with higher marginal contributions). The target group comprised approx. 5,000 rural families (average scale of enterprise approx. 1 hectare) in the upper and central watersheds of the Rio Apurímac earning their livelihood largely from agricultural activities.

The programme was a continuation of the three predecessor programmes for promoting smallholder irrigated agriculture in the southern Andean zone (Phase I; Phase II and Phase

Ila). It is now being continued in Phase IV as the Southern Andean Zone Irrigation Programme IV (BMZ ID 2003 66 377).

Programme Design/Major Deviations from Original Programme Planning and Main Causes

Conceived as an open programme, the FC investment measures comprised the rehabilitation/development and expansion of ten irrigation perimeters in the Cusco and Apurímac regions. The individual projects were designed to concentrate on securing and increasing the supply of irrigation water and rehabilitating and enlarging the irrigation canal network. As a result, irrigation water supply was improved or increased for 4,152 hectares of existing farmland and new irrigation infrastructure was provided for 1,090 hectares.

Among other things, GTZ supported the executing agency in preparing identification studies for the individual FC-assisted projects, advising the target group (operation and maintenance of the extended systems; founding and consolidating their irrigation associations; adjusting crops and agricultural methods) and setting up a monitoring department.

The programme design and layout were adapted to the local situation for the construction and use of irrigation infrastructure. As in the previous programmes, the implementation was undertaken by the executive authority for irrigation projects of the Inka Regional Government (PMI) using national procedures. There were no discernible major deviations from planning at programme appraisal, apart from the prolongation of the implementation period by approx. 1 year.

The water management operation of the various new systems is performed solely by the users. As the layout of the systems was kept deliberately simple and geared to the abilities of the users, the user organisations (which already existed throughout before programme start and could draw on considerable basic know-how in operating irrigation systems) are largely able to conduct the necessary maintenance work as community activities or by means of the water fees charged. The upkeep of the infrastructure is satisfactory overall and there is little risk to sustainability here. Current water rates, however, only cover the relatively low operating and maintenance costs. Reinvestments in primary and secondary infrastructure are the responsibility of government and/or competent local/regional authorities. Considering the relatively small ratio of water fees to production costs, it would have been feasible in microeconomic terms and macroeconomically desirable to have the users bear a larger share of the total costs of the irrigation systems.

Key results of impact analysis and performance rating

The microeconomic impacts on the target group merit a very positive assessment altogether. Output has been raised thanks to the considerable extensions of irrigated land (increase in cultivation intensity from 80% to 122% in five individual projects reviewed) and the increased cultivation of more lucrative crops. In any case, we can assume that the anticipated average rise in income of 20% at programme appraisal has been achieved.

The macroeconomic cost-benefit analysis for the 5 individual projects assessed (73% of total costs) yields an average return on investment of 22% (including consultancy costs), varying between 16% and 60%, depending on individual project (without consultancy costs). Sensitivity studies confirm that these findings are robust, particularly as concerns increased production costs or less intensive perimeter use. When assessing these beneficial results, however, account must be taken of general improvements in the socio-economic framework in the programme region (e.g. improved transport connections and hence better market access) whose positive effects can hardly be isolated from the impacts induced by the programme.

The conditions of life for the target group, who are predominantly classified as very poor, have improved thanks to increased agricultural output and resultant higher income. The users were closely involved in planning and implementing the programme and made

considerable contributions of their own. The irrigation perimeters are operated and maintained by the users and their associations themselves.

Women in Quecha society have a large say in all family decisions and are involved in the decisions and work of the farming enterprises, even though they may not appear in public and/or in the committees of the irrigation organisations. No information is available on possible adverse effects of intensification, e.g. a heavier workload for women. The programme did not, however, afford any scope for making a contribution to gender equality.

The participation of the population was a major element in assuring the sustainability of the measures. They were supported in organising the operation of the irrigation system on their own. Their representatives in the irrigation commissions and committees are direct contact persons for the authorities responsible for water management at regional and provincial level.

The implementation of the measures resulted in minor environmental impacts only. The construction of the irrigation infrastructure caused no major damage. As a scarce resource in the programme region, water is accordingly put to economical use. The intensification of agricultural production may entail greater application of mineral fertiliser and pesticides, whose scale and resultant effects cannot, however, be assessed with the data available.

Today also, promoting irrigated agriculture is a foremost priority in the programme region. It is one of the poorest in the country and the availability of water resources for agriculture plays a decisive role for economic development, as was the case at programme appraisal in 1996. The almost exclusive focus on the irrigation infrastructure and its economic use without taking adequate account of other aspects of integrated water resource management (IWRM), such as higher use efficiency, however, detract from current programme relevance (Relevance: Subrating 2).

The indicators for the programme objective - the sustainable, efficient use of the installed irrigation infrastructure by the farmers - have been largely met. The targets for increased yield and the intensification of agricultural production were exceeded. We may, however, presume that objective achievement would have been less without the enabling environment of improved market access, government aid programmes and tourism. Better results in water use efficiency at field level could have been achieved through greater advisory input at target-group level. Also due to weaknesses in the effective operation of some user organisations and technical problems in individual projects, effectiveness is assessed as satisfactory only (Effectiveness: Subrating 3).

Due to reasonable unit costs and the favourable findings of cost-effectiveness assessments, both production and allocative efficiency are assessed as good. Shortcomings are evident here in the public implementation of measures, resulting in substantial delays and higher costs. In allocation efficiency, account must also be taken of the inadequate database for attributing impacts to the improved availability of water, asphaltting the national highway, other development programmes and tourism. The insufficient coordination with the TC programme and the relatively high ratio of consultancy costs compared with previous programme phases also detract from performance (Efficiency: Subrating 3).

The overall programme objective of reducing rural poverty was evidently achieved with a satisfactory macroeconomic yield on investment, even if the impacts cannot be attributed solely to the programme but also to the above mentioned enabling framework. Replicability has been verified by the current implementation of the fourth (Irrigation Apurimac) phase (Overarching developmental impact: Subrating 2).

We may assume the sustainable operation of all irrigation systems by the users. Maintenance costs are low due to the layout selected and the level of organisation of the committees ensures regular preventive maintenance. When needed, the user organisations can mobilise financial resources via the municipal authorities, for example. Risks are estimated as low of any substantial change in the general conditions for agricultural

production, so that irrigated agriculture can be expected to continue to deliver sustainable returns (Sustainability: Subrating 2).

Based on the subratings, we allocate a performance rating of 2 (good developmental efficacy).

General conclusions

Adequate account should already be taken at appraisal of the need for advisory measures for irrigation perimeter users on completion of investment measures and longer terms planned accordingly. It may be useful to implement these advisory measures directly following the investment and conduct another advisory programme after an interval of two to three years.

Notes on the methods used to evaluate project success (project rating)

Projects are evaluated on a six-point scale, the criteria being relevance, effectiveness (outcome), “overarching developmental impact” and efficiency. The ratings are also used to arrive at a final assessment of a project’s overall developmental efficacy. The scale is as follows:

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| 1 | Very good rating that clearly exceeds expectations |
| 2 | Good rating fully in line with expectations and without any significant shortcomings |
| 3 | Satisfactory rating – project falls short of expectations but the positive results dominate |
| 4 | Unsatisfactory rating – significantly below expectations, with negative results dominating despite discernible positive results |
| 5 | Clearly inadequate rating – despite some positive partial results the negative results clearly dominate |
| 6 | The project has no positive results or the situation has actually deteriorated |

A rating of 1 to 3 is a positive assessment and indicates a successful project while a rating of 4 to 6 is a negative assessment and indicates a project which has no sufficiently positive results.

Sustainability is evaluated according to the following four-point scale:

Sustainability level 1 (very good sustainability)

The developmental efficacy of the project (positive to date) is very likely to continue undiminished or even increase.

Sustainability level 2 (good sustainability)

The developmental efficacy of the project (positive to date) is very likely to decline only minimally but remain positive overall. (This is what can normally be expected.)

Sustainability level 3 (satisfactory sustainability)

The developmental efficacy of the project (positive to date) is very likely to decline significantly but remain positive overall. This rating is also assigned if the sustainability of a project is considered inadequate up to the time of the ex post evaluation but is very likely to evolve positively so that the project will ultimately achieve positive developmental efficacy.

Sustainability level 4 (inadequate sustainability)

The developmental efficacy of the project is inadequate up to the time of the ex post evaluation and an improvement is very unlikely. This rating is also assigned if the sustainability that has been positively evaluated to date is very likely to deteriorate severely and no longer meet the level 3 criteria.

The overall rating on the six-point scale is compiled from a weighting of all five individual criteria as appropriate to the project in question. A rating of 1 to 3 indicates a “successful” project while a rating of 4 to 6 indicates an “unsuccessful” project. In using (with a project-specific weighting) the five key factors to form an overall rating, it should be noted that a project can generally only be considered developmentally “successful” if the achievement of the project objective (“effectiveness”), the impact on the overall objective (“overarching developmental impact”) and the sustainability are considered at least “satisfactory” (rating 3).