

**Ecuador: FISE II (Basic Sanitation Programme)**

**Ex-post evaluation**

<b>OECD sector</b>	14030 / Water supply and sewage disposal for poor people	
<b>BMZ project ID</b>	1997 65 991 1997 70 314	
<b>Project-executing agency</b>	Fondo de Inversión Social de Emergencia	
<b>Consultant</b>	Hydroplan-Eja	
<b>Year of ex-post evaluation</b>	<b>2005</b>	
	<b>Project appraisal (planned)</b>	<b>Ex-post evaluation (actual)</b>
<b>Start of implementation</b>	mid-1998	3rd quarter 1999
<b>Period of implementation</b>	2.5 years	5.5 years
<b>Investment costs</b>	EUR 9.0 million	EUR 8.7 million
<b>Counterpart contribution</b>	EUR 2.15 million	EUR 2.0 million
<b>Financing, of which Financial Cooperation (FC) funds</b>	EUR 6.85 million	EUR 6.7 million
<b>Other institutions/donors involved</b>	none	none
<b>Performance rating</b>	3	
• <b>Significance / relevance</b>	2	
• <b>Effectiveness</b>	3	
• <b>Efficiency</b>	3	

**Brief Description, Overall Objectives and Project Objectives with Indicators**

The open programme comprised the construction, rehabilitation and expansion of 76 water supply systems and the construction of two central sewage disposal systems. Around 1100 individual and group latrines were erected as well. Under the complementary measure, water committees (Juntas Administradoras de Agua Potable y Alcantarillado Sanitario, "JAAPs") were established and trained and hygiene campaigns were carried out. The overall objective of the project was to reduce the health risks to which the rural population of Ecuador was exposed due to contaminated water. The programme objectives consisted in improving the supply of drinking water and the disposal of sewage and faeces in the rural communities of the provinces of Loja, Cañar and Azuay in the Andean highland (Sierra) and in the eastern provinces of Zamora-Chinchiipe and Morona Santiago (Oriente).

The following indicators were defined to measure achievement of the programme objectives:

Drinking water component:

- utilisation of sanitary installations by at least 80% of the families;
- target groups' per-capita water consumption is at least 15 l/d (basic supply);
- water quality meets WHO standards.

Sewage and faeces disposal:

- The connection rate in locations with a sanitation component is at least 80% of the population connected to the water supply network.
- The small-scale sewage treatment plants achieve a 70% BSB<sub>5</sub> reduction.
- The latrines are in use and are clean; the septic tanks are periodically inspected and emptied.

The programme target group consisted of around 50,000 inhabitants of rural communities that usually had fewer than 1500 inhabitants and had been selected in accordance with the poverty criteria agreed with KfW. The average share of poor people across all locations of the overall programme was 82%. Average monthly family income was around USD 160. The majority of the population earn their livelihood with subsistence farming.

**Project Design / Major Deviations from the original Project Planning and their main Causes**

Under an open programme approach, the investment measures included 93 sub-projects with 76 central water supply systems ("WSS"), of which 64 were new and 12 were rehabilitation and expansion projects, as well as 15 latrine projects and two central sewage disposal systems ("SDS").

Almost all WSS were designed as technically simple gravity systems. They are composed of source or surface water catchment, supply mains, purification and chlorination, clear water storage and distribution network with yard or home connections. Public standpipes are not customary in the region and so were not installed. All 15 latrine projects comprised the construction of individual latrines and toilets for schools. The two central sanitation systems Zhumiral and Jadán comprise home connections, a central sewer system with sewage treatment plants and a discharge pipe to the receiving water body.

The individual projects implemented under the open programme were selected upon application by the rural communities on the basis of selection criteria agreed between KfW and FISE at the start of the project; these criteria mostly applied to the share of poor people in the community (at least 60% of the population) and the future users' obligation to contribute unpaid manpower to the construction and to bear the cost of operation of the WSS/SDS. The target group contributions were for the most part performed.

Water committees (JAAPs) were established under the complementary measure, and representatives elected by the rural community were trained as officials of the JAAPs. The training and advisory measures covered four essential areas (organisation and management of JAAPs, financial accounting, technical operation of WSS/SDS and hygiene and environmental education).

## **Key Results of the Impact Analysis and Performance Rating**

The programme meets the basic needs of around 50,000 people living in the poor rural areas of Ecuador. With respect to the achievement of the overall objective (reduction of health risks from water-induced diseases), doctors working at the local health stations of the rural communities benefiting from the programme reported an occasional decline in the incidence of diarrhoea, hepatitis A and skin diseases. In the province of Azuay, on the other hand, records showed a significant rise of 50% in the incidence of diarrhoea, although it needs to be said that not all communities of this province were included in the programme. No health statistics were available for the remaining provinces. In many locations the hygiene education campaign improved people's hygiene behaviour. However, in four of the rural communities of the provinces of Azuay and Cañar (approximately 2000 inhabitants, most of whom are indigenous), the hygiene campaign met with resistance exemplified by the scant use and unhygienic condition of some of the latrines. But given the generally improved supply and disposal situation the project can be assumed to have contributed to reducing the incidence of water-borne diseases.

The target groups (over 80% live below the poverty line) were involved in the planning and all project decisions from the start of the programme and made significant contributions of their own in the construction works. The constitution of the JAAPs and the introduction and practice of democratic rules improved the rural communities' organisation. The programme had positive gender impacts. Women spend less time and effort fetching water (about one hour in the Sierra and around half an hour in Oriente) and now have more time for other occupations.

Measures to protect the water catchment areas were carried out only in one third of the individual locations although their importance was stressed in the course of the training measures. The construction of two central sewage disposal systems and the latrines improved sewage and faeces disposal. On the other hand, the improper operation of the treatment plant in Zhumiral probably is still moderately polluting the nearby river. The programme thus contains components directed at protecting the environment and conserving natural resources.

The programme objective has been largely reached in terms of the drinking water supply component. The programme objective defined for the area of sewage and faeces disposal has been achieved only in part, but it deserves less weight as the investment volume was lower than that of the water supply component. Besides, the sewage disposal situation overall appears to be adequately hygienic given the low settlement density. Overall, the performance of the JAAPs in terms of operation and maintenance of the technically simple facilities is satisfactory. In some cases, for instance when major repairs are necessary, however, the lack of technical support by an overarching institution may turn out to be problematic because neither the municipalities nor the MIDUVI have the necessary human resources. Given the measures planned for setting up a corresponding network, however, we consider the risk to the sustainability of the water supply systems to be still acceptable. We rate the programme's overall effectiveness as sufficient (sub-rating 3).

The target groups gave high priority to the individual projects, which was evidenced by the relatively high contribution of 10% they made to the investment costs, among other things. The individual projects were planned together with the target group and adapted to their needs. Particularly the improvement of drinking water supplies and sewage and faeces elimination at 91 locations made a major contribution to meeting the basic needs of a largely poor and hitherto disenfranchised population which now no longer has to rely on untreated surface or well water. Given that the programme objectives have been largely achieved it is likely that the incidence of water-borne diseases has diminished and thus the overall objective has been achieved at most programme locations, as was confirmed by the staff of some of the health stations. We rate the relevance and significance of the project as satisfactory (sub-rating: 2).

The specific investment costs (including the cost of the complementary measure) of around EUR 186 per inhabitant correspond with the cost estimate made at the time of programme appraisal and are generally reasonable. What must be rated negative, however, is that some of the latrines are not being utilised and that the output of the sewage disposal system in Zhumiral is inadequate. The average dynamic production cost calculated for the ten water supply systems (USD 0.36/m<sup>3</sup>) is below the average production cost at the time of appraisal (USD 0.55/m<sup>3</sup>) and acceptable on an international scale. At the current tariff level around 50% of the sub-systems cover their operating costs. For major repairs or when it becomes apparent that running costs will not be covered the JAAPs usually levy a surcharge at the end of the year or determine tariff increases, however, so that even the water supply systems that cannot report adequate recovery of operating costs on the basis of the current tariff level will actually be able to cover their operating costs. In these systems, therefore, there are not likely to be any major risks to the financial sustainability of the facilities. A strong increase in water consumption was recorded in 14% of the water supply systems (over 120 litres/c/d) which suggests commercial utilisation (livestock watering, irrigation) and is not justifiable as the tariffs fail to cover the cost of operation. Overall we rate the allocation and production efficiency as still sufficient (sub-rating: 3).

Taking into account the above mentioned aspects we rate the efficacy of the project as altogether sufficient (overall rating: 3).

### **Conclusions and Recommendations**

Behavioural change and practical learning experience on the part of the target groups are long-term, gradual processes. Personnel support schemes designed for the longer term and starting in the construction phase to continue during the operating phase for approximately one year on a case-by-case basis (if possible after reviewing existing training deficits) appear to be promising.

A demand-oriented approach to the selection of the individual projects in the framework of an open programme and the priority of the projects for the target groups, expressed by significant target group contributions, as well as their intensive and direct participation in all phases of the project cycle, can create important preconditions for promoting a sense of ownership and the sustainability of the facilities.

Intermittent training and advice imparted to the target groups over a longer period of time (in this case three years), orientated towards the practical implementation of lessons and the mutual exchange of experience, were important for the successful and sustainable operation of the individual systems.

Project objectives relating to water or sewage quality should be measured at least in the form of auxiliary indicators where the target group's ability to perform analyses is limited and general executing agency structures have insufficient financial and human resources to perform elaborate measurements on a regular basis. For sewage such an indicator may be the periodic estimate of inflows and outflows and, thus, the time the sewage stays in the treatment plant, or the assessment of treatment efficiency by optical criteria.

User groups of small, centralised systems are often not adequately equipped or skilled to perform more complex repairs themselves, such as filling cracks in the water reservoir. Therefore, depending on the local conditions, mobile maintenance and repair services should also be set up for such systems, or available mechanics should be involved in the project by service agreements in order to ensure that the systems are always operational.

## Legend

<b>Developmentally successful: Ratings 1 to 3</b>	
<b>Rating 1</b>	<b>Very high or high degree of developmental effectiveness</b>
<b>Rating 2</b>	<b>Satisfactory developmental effectiveness</b>
<b>Rating 3</b>	<b>Overall sufficient degree of developmental effectiveness</b>
<b>Developmental failures: Ratings 4 to 6</b>	
<b>Rating 4</b>	<b>Overall slightly insufficient degree of developmental effectiveness</b>
<b>Rating 5</b>	<b>Clearly insufficient degree of developmental effectiveness</b>
<b>Rating 6</b>	<b>The project is a total failure</b>

## Criteria for the Evaluation of Project Success

The evaluation of the "developmental effectiveness" of a project and its classification during the ex-post evaluation into one of the various levels of success described in more detail below concentrate on the following fundamental questions:

- Are the **project objectives** reached to a sufficient degree (aspect of project **effectiveness**)?
- Does the project generate sufficient **significant developmental effects** (project **relevance** and **significance** measured by the achievement of the overall development-policy objective defined beforehand and its effects in political, institutional, socio-economic and socio-cultural as well as ecological terms)?
- Are the **funds/expenses** that were and are being employed/incurred to reach the objectives **appropriate** and how can the project's microeconomic and macroeconomic impact be measured (aspect of **efficiency** of the project conception)?
- To the extent that undesired (**side**) **effects** occur, are these tolerable?

We do not treat **sustainability**, a key aspect to consider for project evaluation, as a separate category of evaluation but instead as a cross-cutting element of all four fundamental questions on project success. A project is sustainable if the project-executing agency and/or the target group are able to continue to use the project facilities that have been built for a period of time that is, overall, adequate in economic terms, or to carry on with the project activities on their own and generate positive results after the financial, organisational and/or technical support has come to an end.