

Bangladesh: Compartmentalisation Pilot Project (FAP 20)

Ex-post evaluation

OECD sector	31140 - Agricultural water resources 41050 – Flood protection	
BMZ project ID	1991 65 952	
Project-executing agency	Bangladesh Water Development Board (BWDB)	
Consultant	Euroconsult/Lahmeyer (1991 - 1995) Lahmeyer/Haskoning (1996 - 2000)	
Year of ex-post evaluation	2004	
	Project appraisal (planned)	Ex-post evaluation (actual)
Start of implementation	06/1991	07/1991
Period of implementation	4.5 years	9 years
Investment costs	EUR 16.6 million	EUR 20.3 million
Counterpart contribution	EUR 2.8 million	EUR 2.8 million
Financing, of which Financial Cooperation (FC) funds	EUR 6.9 million	EUR 6.9 million
Other institutions/donors involved	Netherlands: EUR 6.9 million	Netherlands: EUR 10.6 million
Performance rating	2	
• Significance/relevance	2	
• Effectiveness	2	
• Efficiency	3	

Brief Description, Overall Objective and Project Purposes with Indicators

The project is one of 26 components of the Flood Action Plan (FAP) developed in 1989 under the lead of the World Bank. The aim of the FAP was to examine the technical feasibility, the economic justifiability, the environmental impacts and also the institutional issues of comprehensive flood protection as well as integrated water management for Bangladesh. The objective of the Compartmentalisation Pilot Project (FAP 20) was to gather experience with the planning, construction and operation of compartments in the floodplain of the Jamuna River while taking the local water management, institutional and socio-economic conditions into account. Two test compartments, each covering an area of approx. 10,000 ha, were to be established and, during a two-year test phase, a local structure for the operation of the compartments and of the sub-compartments which they enclose was to be introduced and tested.

The purpose of the project, which was to prepare tested instructions for the planning and water management of compartments and the sub-compartments they enclose, has been achieved. A lengthy final report of several volumes focusing on the planning, construction, operation and maintenance of compartments and sub-compartments has been presented to the competent BWDB (indicator). Although only one compartment was established for financial reasons (see below) the lack of information needed to make reliable statements could be replaced by computer simulation models which, thanks to technological progress during the implementation

period, attained the required level of development. The successive start of operation of the compartment as of 1996 and the occurrence of the flood in 1998 made it possible to gather sufficient experience about its operation, also in extreme situations. During the ex-post evaluation, only the concept designed for the organisation of the water user groups was found to be not fully applicable. A "contribution to the economic development of the rural area affected by floods" that had been defined as the overall objective is generally discernible, even though the new national sector strategy does not include plans to build any additional compartments. FAP 20 did, however, make it possible to gain significant knowledge about specific country conditions and about difficulties with collecting contributions for maintenance within the flood compartments. This knowledge flowed into the further development of the overall water sector policy, which is extremely important for Bangladesh.

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

At the time of the project appraisal, there were initially plans for the partial embankment of two areas of about 10,000 ha each (Sirajganj and Tangail) under the pilot project. Since the technical planning, quantity estimates etc. were not developed until after the project had begun, the project scope was adjusted to the available resources during the course of implementation. As a result, only the compartment in Tangail was established. Plans to build another compartment in Sirajganj were cancelled during implementation.

The construction of the compartment in Tangail, which covers 13,305 ha, included elements such as protective and side embankments, erosion control measures, a main inlet sluice and numerous structures for the regulation, storage and outlet of water. In order to avoid putting the population living close by the compartment at a disadvantage, various compensatory measures were carried out for roads, bridges and canals. At the same time that the construction measures were being carried out, water user groups were institutionalised and prepared for the operation and maintenance of the facilities.

The aspired goal of the pilot project – as stated in the appraisal report – of clarifying the technical and water-management possibilities of operating compartments with flood control and drainage was achieved in full. The fact that the compartment in Sirajganj was not realised due to a lack of funds did not have an impact on the project results. In contrast, the expected full assumption of operation and maintenance tasks by organised water user groups was achieved to only a limited degree. At the time of the ex-post evaluation in the year 2004 the users were successfully conducting adjusted water management through the regulating structures, yet they were participating very little in the maintenance of the compartment infrastructure.

The programme was co-financed by the Federal Republic of Germany, the Netherlands (lead) and Bangladesh.

Key Results of the Impact Analysis and Performance Rating

On the local level the socio-economic impacts of the project on the target group are evident. It can be clearly shown that, as a result of FAP 20, the inhabitants of the compartment area are fully protected against dangers that threaten their lives and their economic infrastructure as well as their harvests, even during heavy floods. The rise in agricultural yield potential of the embanked compartment that has been brought about by controlled water management is fully exploited by the target group. Three harvests p.a. are now possible (previously only one harvest p.a.), making the cultivation intensity jump from 160% (matches the nation-wide average) to over 260% since completion of the compartment. In addition, the flood protection now makes it possible to plant sensitive high-yield types of rice, which leads to an average yield per ha of over 15 t/ha/a (national average only 5 t/ha/a). Apart from the substantial improvements in agricultural yield, fish production also experienced strong growth as a result of permanent aquaculture, which again is only possible because flooding can be controlled. In nation-wide comparison, in the compartment area the harvests are substantially higher and the fish production has increased. In addition, in the city of Tangail in the center of the compartment there are signs of economic recovery which, according to the local population, are due to the greater purchasing power of the neighboring rural population in the compartment.

The people living in the compartment area are aware of their improved situation as beneficiaries of the programme and, compared to the living and working conditions of people living outside of the compartment, can be considered to be privileged. In consequence, there is extraordinarily high migration into the compartment area. According to the local administration, around 30,000 people have moved into the area in the past few years. The value of the land that is protected against flooding is said to have risen about tenfold since the start of the project.

During the project appraisal, considerable risks to the achievement of the goal were noted. As expected, the weakness of the project-executing agency that had been identified as a risk to speedy implementation was, for the most part, counteracted through the assignment of the consultant. Nevertheless, the BWDB does not demonstrate adequate sensitivity towards the target group – which is required for smooth implementation – particularly with regard to land expropriation. Since considerable improvements were made during the project, however, generally speaking this deficit did not jeopardize the goal.

The risks to project success in terms of acceptance of the compartment that had been identified during the project appraisal arose to only a limited extent since from today's perspective, the intensification of the dialogue with the target group and with non-governmental organizations during implementation fully satisfies the needs of the target group.

The risk that the target group would hardly be willing or able to maintain the facilities - which had been deemed considerable - arose in part, yet it will not have any negative impacts on the project as a whole as long as the operating costs are borne by the BWDB. The risks associated with adherence to the time and cost schedules and with the implementation deficiency of the project-executing agency were correctly identified in the appraisal report, and the consultant was able to control them. The question of land expropriation, which was on some occasions the highest risk factor for continuation of the project, was finally resolved – despite several problems – thanks to heavy intervention by the financing organisations. Since all compensation was paid, everyone was satisfied.

From today's perspective, strictly speaking the project could not fully achieve its ambitious goal of a higher user participation rate compared to former projects already being implemented in Bangladesh. The BWDB is in charge of maintaining all the structures, and it has a corresponding budget. As yet, no fees are being collected from the users. We do not consider this approach ideal. Nevertheless, it sufficiently ensures the sustainability of the project. In case of a possible reduction or cancellation of the external support (e.g. under a programme by the World Bank and the Netherlands) we assume that the users will take the initiative to maintain and ensure their situation, which is privileged in comparison to other regions.

Taking the pilot character of the project into account, we summarise our assessment of the success of the compartmentalisation pilot project as follows:

The project purpose was achieved through the preparation of tested instructions for the planning, construction and operation of a compartment. There is one limitation, however, in connection with the instructions for water management operation, which were considered too ambitious and could not be applied in practice. The agricultural potential of the compartment area that was created under the project is fully exploited by the inhabitants. Overall we classify the **effectiveness** of the project to be **satisfactory (partial evaluation: rating 2)**.

Its developmental relevance is given; the development and spread of adjusted flood protection measures continues to play a key role in the further development of the country. Although the construction of embankments for additional compartments is technically possible and also viable in macroeconomic terms, further projects of this kind are currently not planned since the development of flood protection concepts has taken on a new direction. Therefore, broad-scale solutions are only to be applied in individual cases and will otherwise be replaced by individual construction measures and better early warning systems ("Living with the Flood"). Yet, the project has clearly impacted the water sector as a whole. The fundamental concept of participation that was applied in Bangladesh for the first time under this project has since become established among all stakeholders in the sector and is influencing the nation's overall water policy as well as project approaches. Thus we judge the **significance/relevance** of the project to be **satisfactory (partial evaluation: rating 2)**.

Owing to its pilot character, the project's **efficiency** is very difficult to assess. Compared to similar irrigation perimeters, the costs of constructing the embankments range between

adequate and favourable, as does the achieved high level of cultivation intensity. The considerable delay is due mainly to the adjustments made to the implementation concept, which was to be expected in view of the project's pilot character. This also applies to the navigation locks and dams that were built but later became redundant, so that the project's efficiency can be considered to be **sufficient** overall (**partial evaluation: rating 3**).

On the basis of the partial evaluations, overall we rate the compartmentalisation pilot project as having achieved a **satisfactory degree of developmental effectiveness (rating 2)**.

General Conclusions applicable to other Projects

Major misunderstandings among the general public that have arisen in the meantime in connection with the goals of the project could have been avoided from the outset by a more transparent information policy.

Legend

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

Criteria for the Evaluation of Project Success

The evaluation of a project's "developmental effectiveness" 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, organizational and/or technical support has come to an end.