



India

Application of the ILBM6 Evaluation Framework to the Lake Bhopal Conservation and Management Project and Beyond

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Outline and Objectives

Many ODA projects support water quality improvement and recovery of ecosystems in rivers and basins in developing countries. However, projects of this nature have a particular need for integrated, long-term conservation and management due to the special characteristics of natural science involved in projects of this genre; consequently, it was difficult to measure the effects of the project using conventional evaluation methods. Given these factors, this thematic evaluation, using the Lake Bhopal Conservation and Management Project in India (see page 96) as a case study, developed and applied an ex-post evaluation

method based on the concept of integrated lake basin management (ILBM), a scheme drawing on the basin management experience of 28 representative lakes around the world including Lake Biwa. The ex-post evaluation method incorporated the ILBM six elements of basin governance structuring (ILBM6). The objective of this initiative was to propose an evaluation method that could be used for future similar projects and to identify necessary criteria for the planning and implementation of subsequent projects.

Evaluation Methodology

1. Characteristics of the lake and ILBM6

The lake, a closed water area, has three natural scientific characteristics, each requiring its own particular measures for the conservation and management of its environment:

- ① The concentration of inflow sludge and the water use both upstream and downstream result in considerable stress ⇒ a comprehensive initiative across a number of jurisdictional agencies involving the participation of diverse stakeholders is required
- ② The accumulation of inflow river water over long periods ⇒ “changes” occur latently over the long term; therefore, long-term political and administrative commitments, local monitoring, and a sustainable budget are required
- ③ Complex biological, chemical, and physical phenomena with repercussions affecting the food chain and biological concentration occur ⇒ scientific and technical viewpoints which clarify the stress from outside the lake and the causes and effects of changes in water quality in the lake and ecosystems are required

ILBM is a basin management concept/framework which was articulated to take into account the above characteristics. ILBM6 represents the six elements of governance that form the framework of the plan which are ① establishment of organizations and institutions, ② contribution to policy planning, ③ promotion of participation, ④ promotion of technical initiatives, ⑤ concentration and reflection of knowledge and information, and ⑥ sustainable resources.

In this thematic evaluation, the initiatives and results under the captioned project were to be evaluated from the perspective of ILBM6. However, the evaluation itself is not the objective; rather, the focus is to determine the extent to which stakeholders of the basin management consider the issues to be addressed on their own and how they could continue to improve conditions in a sustainable way*.

* Please see the GEF Lake Basin Management Initiative (GEF LBMI) Report (2005) for lake characteristics and the six elements of governance at www.ilec.or.jp/eng/lbmi/index.html. This was an initiative whereby ILEC with the participation of international organizations and specialists (288 attendants from 41 countries) brought together collective experience in basin management of 28 lakes around the world and presented a framework for river basin planning and management. It became the basis for the logical structure of the ILBM concept.

2. Evaluation Methodology

1) Evaluation methodology: Issues were identified through ILBM workshops (May and August 2007, with 130 participants) for stakeholders including executing agencies, researchers, residents, and NGOs. Meetings were held among Indian and non-Indian specialists, and proposals were summarized. A questionnaire survey (700 people, September 2006) was used as supplementary information.

2) Viewpoints of the evaluation: Viewpoints of evaluations and analyses presented to initiate discussions at the workshops were as follows:

- ① **Perspective of analysis through the overall project:** What benefits and changes in social initiatives resulted from the project? What areas should be addressed in the future?

Viewpoints of the ILBM6 analysis:

- ① **Development of organizations:** Is the horizontal cooperation across administrative organizations adequate? Do the decision makers understand the needs of residents and the lake? Are social/legal systems adequate? What areas should be reviewed upon project completion?
- ② **Contribution to policy planning:** Is the basin management policy understood by society? Are the perspectives of sustainable use and conservation reflected in all sector policies? Has the Lake Conservation Association (LCA) been provided with an appropriate framework and human and financial resources?
- ③ **Promotion of participation:** While achieving broad-based participation of society is important for sustainable lake basin management, what are the issues particular to Lake Bhopal?
- ④ **Promotion of technical initiatives:** What are the issues in the O&M of environmental infrastructure such as sewerage? What further technical initiatives are required?
- ⑤ **Accumulation of knowledge and information:** Are people fully informed of the current state of the lake? Does a functioning system for a database exist? Is LCA demonstrating its role?
- ⑥ **Sustainable resources:** There are examples of revenue-generating measures in other lakes, such as taxes imposed on catches, pollution levies, and charges for the drawing of water. What are the issues for Lake Bhopal?

Evaluation Results

Utilizing the ILBM6 framework, issues in the conservation of Lake Bhopal identified in discussions with stakeholders are summarized below.

Summary of the Results of the Evaluation Utilizing the ILBM6.

Issues	Viewpoints	Analyses	Recommendations
1. How were the project components selected?	①, ③	<ul style="list-style-type: none"> Participation at the time of project commencement were limited. Questionnaire survey shows high expectations of the people for participation (Figure 1). 	Efforts to build upon project results and disseminate them to society, such as through stakeholder workshops, should be continued.
2. To what extent was the upstream area taken into account?	①, ①, ②, ③, ④	<ul style="list-style-type: none"> Not sufficient. The major part was undertaken either within the lake (dredging) or the lake environs (afforestation) (Figure 3). The gabion structures for erosion control, placed at the furthest location upstream, were at most within a few kilometers of the lakeshore area. 	Controlling outflow of soil and nutrient salts is essential for improvement in water quality. A full-fledged investigation to identify the causes of such outflows in the upper basin and long-term measures is necessary.
3. To what extent was the impact on the downstream area taken into account?	①, ②, ③, ⑤, ⑥	<ul style="list-style-type: none"> The sewerage treatment facility reduced inflow of untreated sewage into the upper lake but was not sufficient. In ILBM6, the relocation of dhobis is perceived as "The pollution has moved to the downstream." (Figure 2) 	Additional projects and monitoring of water quality in the lower basin are necessary.
4. How has the relationship of the organizations developed as a result of the establishment of the LCA?	①, ②, ③	<ul style="list-style-type: none"> The establishment of the LCA is one of the most important institutional developments by the project. On the other hand, its role, functions, authority, and human/financial resources have yet to be established. 	It is necessary to clarify the position of the LCA and to secure sufficient human/financial resources. Its role and function to work in unison with the community must be strengthened.
5. To what extent has construction of various facilities contributed to the fundamental solution to problems?	④, ⑥	<ul style="list-style-type: none"> Securing an O&M budget for the sewerage facility needs to be addressed to reduce inflow pollution. Outflow of soil and nutrient salts from outside urban areas and the burden originating from urban areas are also issues to be addressed. Future basin countermeasure projects (afforestation, prevention of soil outflow) are vital. Ongoing and proactive long-term efforts are needed. 	For "hard" facilities, securing a long-term O&M budget and appropriate executive framework are essential.
6. What kind of opportunities were provided for Lake Bhopal conservation and what effects did they have on future efforts?	①, ②	<ul style="list-style-type: none"> The project was a full-fledged initiative aiming at the conservation of Lake Bhopal and had a significant impact following project completion. From the ILBM framework perspective, it marks an important step. However, many outstanding issues remain concerning the establishment of basin governance, and the next steps will be important. 	It is hoped that when implementing additional Lake Bhopal basin management projects, it will improve basin governance, building upon the results of this project.

Figure 1: Questionnaire responses to "What is your opinion about participation in Lake Bhopal conservation?"

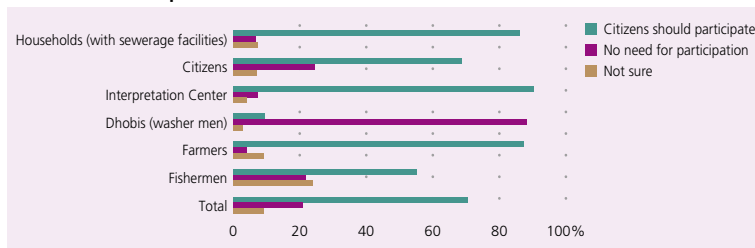


Figure 2: Drainage basin of Lake Bhopal

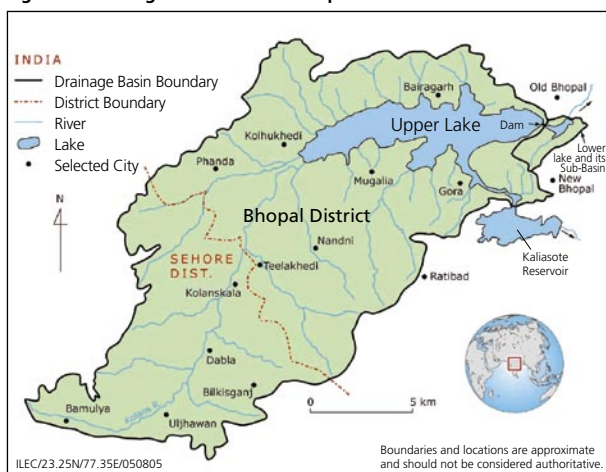


Figure 3: Main components of the project



Issues to be addressed in the future ODA loan projects on lake basin conservation and management

The evaluation based on the ILBM framework focuses on how conditions can be improved in an ongoing manner. The concept of ILBM has not yet been fully developed and this is the first time it has been applied to an ODA loan project evaluation. However, in addition to

complementing the existing evaluation framework, it can be seen as a method which provides insight for analyzing the sustainability of projects and an effective method for opening a vista for the future.