

## Institutional Aspects of Asian Lake Basin Management

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### A. Brief introduction

This paper reviews the institutional aspects of lake basin management for the eight Asian cases reviewed in this initiative. It uses as its main focus eight overarching questions that are themselves derived from the lake briefs and discussions at the Manila workshop on Asia, and on an analytical framework, provided in a separate paper and outlined in Appendix 1.

### B. Common (but not universal) characteristics of Asian lakes and basins

*More widely shared characteristics.* As a whole, the Asian lakes were similar to the Americas/Europe ones presented in the first workshop in Vermont in a number of ways. The quality of engineering was high in both regions. The range and experience of institutional arrangements and administrative tools used in Asian lake basins are also similar, at least on the surface. They differ in a number of important ways from the African lakes in the project, as noted below. Like many lakes throughout the world, most Asian lakes are faced with a governance environment that emphasizes decentralization, economic liberalization and wider stakeholder involvement, often triggered or impelled by budgetary crises at the national level.

*Comparisons of the Asian lakes with the African sample.*

1. The number of GEF-supported lakes in our Asia group is far below that for Africa; this probably reflects the relative autonomy of the management agenda of Asian lakes from international donors, with the notable exception of Tonle Sap.
2. With the exception of Xinghai/Khanka, all the lakes in Asia are within a single country. Aside from that case, only Tonle Sap lies within an international basin. Both of these appear to be exceptional cases. The explanation for the relative high share of non-international lakes may lie in the large number of countries that either have large surface areas or are composed of islands. Half of the selected Asian lakes are even within the compass of a single second-level administrative unit: Lake Biwa (Shiga Prefecture), Chilika (Orissa State), Bhopal (Maharashtra State), and Dianchi (Yunnan Province). In almost all cases, the basin as a whole extends beyond this administrative unit, however.
3. Population densities in Asia's lake basins are usually high and often growing, either through natural increase or migration, although perhaps not at the rate of many African lakes. Where there is a high rate of migration relative to natural increase, as in Africa, tensions can arise between established populations and newcomers (noted in lakes Biwa and Tonle Sap, perhaps also present in Laguna, Dianchi, Chilika and Bhoj)
4. In typical Asian cases, rapidly growing and shifting economies, often globalizing, generate even greater stresses than population change per se. Examples include the growth of urban areas and industries around lakes; large commercial fishing, bringing with it capital-intensive fishing techniques such as fish pens, introduced species, and fish and shrimp farms; chemicalized agriculture; and degradation of the watershed through commercial logging, often illegal. To some extent globalization and urbanization also affect African lakes (e.g., Victoria, Naivasha, Nakuru), even though national economies are not growing as rapidly as in Asia.
5. Compared with Africa, and perhaps some of the American and European cases as well, the administrative bureaucratic systems in Asia are well-established and comparatively dense, complex and stable (exceptions are Tonle Sap and possibly Toba). Indeed, it is possible that

the governance problems of firmly entrenched interests and residual traditional reliance on top-down authoritarian decision-making have resulted in weak social capital that endangers the success of devolution and subsidiarity programs. Climate appears to be less of a driver in the Asian cases than in a significant portion of the African ones (e.g., Chad, Lake Victoria, smaller Rift Valley lakes).

6. Ethnicity and colonial legacies appear to be less divisive in Asia than in Africa, but they are not absent. African states and administrative capacities tend to be “softer”.

### C. Overview of lakes in our project from an institutional view

These institutionally important features of the Asian lakes include the size dimensions that are important for other reasons as well, but also the administrative context (e.g., international), whether there is an institutional arrangement tasked with development or coordination activities on a basin-wide basis, and trends in human stressors (economics, population density, politics etc.) A brief characterization of the individual lakes from an institutional view, together with selected features of the relevant dis/enabling environments, follows:

**Biwa** Although it is the largest lake in Japan by both volume and surface area, Lake Biwa and its inflowing watershed lie almost entirely within one prefecture, Shiga. The prefecture has defended its “administrative property rights” over the lake against the national government. Conflicts have occurred over both quantity and quality of water with downstream prefectures and Osaka Municipality. The Lake Biwa Comprehensive Development Program (1972-1997) provided compensatory construction projects such as flow control structure, flood control facilities, river improvement schemes, and regional sewerage facilities, some aimed at environmental improvement, in exchange for water release rights by downstream administrations. A 1970s consumers’ movement against phosphorus detergents was eventually successful in eliciting positive and innovative responses from manufacturers and government. The Lake Biwa Research Institute was established in 1982 to provide science-based policy research. Since then, ILEC and UNEP have established offices in Shiga. The prefecture has engaged in significant environmental awareness and education activities, and the Lake Biwa Museum provides a focus on lake management. Recently, a Lake Biwa department has been created within the prefectural government, but there is no free-standing development or management authority. Regulation of water users (including dischargers) appears to be done largely by sectoral departments. Although the population of Japan is growing slowly, there has been a significant migration of commuter families into Shiga whose wage-earners work downstream. Shiga has changed from a largely agricultural to a largely suburban prefecture, with one of the top average incomes in Japan. Tourism, lifestyles, and the nature of environmental interests have changed correspondingly. A divide has opened up between the south, which is changing most rapidly, and the north, which remains agricultural and traditional. Development and non-agricultural stressors are concentrated around the shallow, more fragile Southern Lake near the outlet.

**Toba** Administratively, Toba is under the administration of the Environmental Impact Management Agency (Bapedalda) of North Sumatra, whose governor has set up a Coordinating Board for Lake Toba Ecosystem Preservation. Prospects are high that this government-dominated committee will meet local resistance. A proposal for a Lake Toba Management Body was abandoned in 1999 because of resistance from local stakeholders. Local communities are traditionally rivalrous (beggar-thy-neighbor), with little well developed capacity for cooperation, despite their shared minority religious status as Christian Bataks, and the activism of at least some church leaders. Outside development to use lake resources to benefit non-residents provoked strong resistance, especially against Indorayon. Proposed developments in watersheds are likely to damage lake water quality. Decentralization policies have uncertain prospects, especially given the history of centralized government.

**Dianchi** The provincial capital of Kunming and its urban-industrial complex lie at the inlet of the lake (opposite from the case with Lake Biwa). Sectors affected by lake degradation (fishery, lake transport, tourism) may be less powerful economically and politically. External funders, including international organizations as well as the central government, may serve a role in elevating the lake environment on the day-to-day agenda, but how or how well this process works is not clear. Agencies involved in lake management are “led” by the local government, presumably that of Kunming Municipality and/or Yunnan Province.

**Xinghai/Khanka** This is the only lake in the Asian group that straddles an international border. Little coordinated management is apparent, either between China and Russia or within either country. The

Russian side is suffering from economic depression. Both countries have signed agreements, but the lake is far from the capital of either country. Ramsar status may impel some joint action eventually.

**Chilika** The Chilika Development Authority (CDA), established in 1992, was largely ineffective for five years as the Revenue Department dictated a controversial prawn and fish pen policy relying on and (at least in popular perception) benefiting outside capital while local catches fell and the lake degraded. Violent clashes with the fishers and a change of government in Orissa in 1997 led to a change of management at the CDA, producing what appears to be one of the most effective lake management authorities in the sample. A key element was an engineering solution to lake degradation (dredging a new outlet). Remaining problems include upstream developments, watershed degradation and institutional sustainability if either CDA senior management or the state government changes.

**Bhopal (Bhoj)** The Bhoj lakes are quintessential Indian urban lakes, stressed by both watershed activities and heavy lakeshore users, such as upscale real estate, religious rituals and launderers. The latter appear to be the almost exclusive target of management. It is unclear how or who does the management of the lakes at present, although it is probably done within the urban government.

**Tonle Sap** Tonle Sap is very difficult to manage, as it is an open system in many ways. It is highly variable from season to season, and is closely linked to the rest of the Mekong river system in a passive way. Cambodia has weak governance and a low level of management capacity, because of its poverty, the devastation of the Khmer Rouge era, and ongoing conflicts between ethnic groups and between migrants and others.

**Laguna de Bay** The Lake Laguna Development Authority (LLDA) has an extensive and well-documented history of institutional development, including innovative funding arrangements and linkages with local stakeholders, including local governments. It is the most all-round lake management authority in this set, with coordinating and regulatory functions as well as the promotion of development.

#### D. Overarching institutional questions and the Asian lakes

Eight overarching questions, or filters, were used to sort institutional information from the Asian lakes. These are derived from an institutional analytical framework presented in Appendix 1. One of these filters, "Whose perspective is heard in the brief, and whose is not," seeks to make explicit the institutional perspective of the author(s) of the briefs, as these vary considerably and lead to a significant lack of congruity in presentation. It does not address institutions themselves, however, and has been provided separately, as Appendix 3. Remaining filters, presented here for each lake, with references to the pages and line numbers from the versions presented at the regional workshop in Manila, are:

1. Who "manages" the lake basin?
2. How are key governance actors funded?
3. Who uses the lake basin?
4. What drives institutional change?
5. What is the impact of the overall governance framework?
6. How are governance and use conflicts addressed? and
7. How is successful implementation carried out? (a very short section)

##### 1 . Who "manages" the lake basin?

**Biwa** The prefectural government takes the lead role in managing Lake Biwa, and has successfully defended its right to do so against the national (and regional branch of the) Ministry of Land, Infrastructure and Transport (formerly, Ministry of Construction), which tried to assume bureaucratic "ownership" rights over the lake in the revision of the River Law. The near one-on-one correspondence between the lake watershed and prefectural boundaries facilitates Shiga's assumption of management. At the same time, the Lake Biwa watershed is only the upstream portion of the Biwa-Yodo watershed, giving Shiga a "control" position but leading to friction over the management of the larger basin system, including natural and artificial downstream flows. The LBCDP was a mechanism for resolving this conflict that persisted through two renewals, but is no longer of great use to downstream prefectures. The Lake Biwa office has been established within the prefectural government, but

loyalty to line agency project and budget orientation remains strong. Lake Biwa offers an interesting example of organization within the existing government structure rather than through the creation of a separate development agency as in Laguna de Bay or Chilika.

**Toba** Formally, the Environmental Impact Management Agencies (Bapedalda) of North Sumatra and of the six Districts in the region. The Bapedaldas focus on studying environmental conditions, and do not coordinate preservation activities or initiate partnerships with other organizations (p 15: 3-10). An attempt to create a Lake Toba Management Body (LTMB) under a Presidential Decree prepared by the national Department of Tourism, Art and Culture was abandoned in 1999 because of resistance by local stakeholders. (20:27ff) In particular, concerns were expressed about Bataks being excluded from their land on grounds of environmental protection; that preservation would rule out economic (especially industrial) activities altogether; and that the LTMB would add an additional layer of bureaucracy that would attenuate the authority of local government. Since 2002, there is a Coordinating Board for Lake Toba Ecosystem Preservation set up by the North Sumatra governor that consists primarily of government officials (26:37).

The vast majority (87%) of the catchment is in the North Tapanuli District (Kabupaten), yet the district does not have the capacity to dominate management as in the case of Shiga.

“The concept of management committee for Lake Toba has been proposed by various stakeholders, from government, private sector, NGOs up to the community which aimed [at] the optimal development and preservation of Lake Toba. It has never been materialized, due to different perceptions and interests among the stakeholders.” (14:25-29) Good e.g. provided in case of lack of awareness of NGO cooperation efforts by government agencies. (14:50-52)

**Dianchi** Who has management responsibility is not really clear from the brief: “The central government leads the national environmental protection bureau and the lake management institutions” is followed by a simple characterization of the environmental protection bureaus as an administrative hierarchy (presumably reflecting the CRAES authorship). (8:40-44) This is followed by alluding to an “integrated management plan” in the appendix (p 24) that turns out to be a list of national plans and construction projects, none of them under the EPBs. Lake basins of national importance are under the Ministry of Water Resources, not the SEPA. This may be the case as well for Dianchi.

P. 4 (26-30) Notes that 2 districts (prefectures) of Kunming Municipality are within the drainage area of Dianchi, but it is not clear if this is all of the drainage area. Mention is made that the “local government” established a management bureau for Lake Dianchi in 2002 (10: 50). I

In our breakout session, the Dianchi Protection Committee and Bureau was identified as the coordinating authority. It was said to be interagency.

**Xingkai/Khanka** As an international lake between two former enemies, the separate portions of Khanka/Xingkai are largely managed in isolation by China and Russia, although some agreements are being made, as indicated in the brief. On the Chinese side, management is made difficult by the presence on the ground (and water) of different administrative levels and actors, including the military: “Lake Xingkai and its drainage basin [belongs to] the People’s Government of Mishan City, the Xingkaihu State Farm, Xingkaihu Agriculture Factory of Heilongjiang Province and Army in China.” The result is “confused management” that lacks a “unified plan” or “authoritative organization.” [4:49-53].

**Chilika** Before 1992, the Orissa state Fisheries and Tourism departments. Chilika Development Authority, established in 1992, was largely ineffective until 1997. During that period, the Revenue Department dictated a controversial (prawn, fish pen) fishing policy (5: 13-32). Chilika is a downstream subbasin, however, and its future depends strongly on what happens elsewhere on the Mahanandi.

**Bhoj** Madhya Pradesh Lake Authority (under construction)

**Laguna** The Lake Laguna Development Authority (LLDA), with increasing authority and ambitions for more.

**Tonle Sap** Currently, the Cambodia National Mekong Committee, to the extent that anyone manages Tonle Sap. Because of its high variability and dependence on the flows of the Mekong, Tonle Sap is particularly ‘unmanageable’. Its characterization as an “international commons” indicates that there are a large number of international actors who are seeking to have a hand in TS management. In addition, Cambodia has weak

governance and a low level of “administrative capital,” and presumably of social and human capital, both because of its poverty and because of the devastation of the Khmer Rouge era.

## 2 . How are key governance actors funded?

**Biwa** People at the workshop were particularly curious about budgeting and financial flows in Lake Biwa. They also appeared to be confused about the LBCDP, which financed construction, and the financing of post-plan operations and maintenance. More on this, including recovery of costs for sewage and irrigation water, would be helpful, as would the nature of the institutions delivering and charging the fees. Some information on the revenue-sharing mechanism that funded the LBCDP might also help people understand how that worked.

**Toba** Concern in the brief is focused on funding of community-based watershed management program. Aside from mention of a \$3,200,000 wastewater treatment public works boondoggle (3:3) and a \$40,000 seed grant from CSG/US-AEP (3:29), the brief does not appear to indicate any other funding sources. Although note is made that the “main obstacle to project sustainability is the security of funding,” (23: 30) no indication is given of how funding can be secured

**Dianchi** Project funding is from various external sources, mainly loans (World Bank, national government, provincial government). “The local government leads the management institutions and give[s] some financ[ial] support” (11:14-15).

**Xingkai/Khanka** Funding in both countries is from governments (17:8-9). Diagnostic analysis was supported by UNEP, partially with Japanese Government funding, with probable support for a followup project for the two riparian countries (17:43-51). The report does not appear to indicate an identifiable lake-specific “key actor” on either side, however, aside perhaps from some level of the environmental protection administration.

**Chilika** State government funding to CDA seriously “insufficient” (25:10). Reference is made to external fundraising, but the sources of funds do not appear in the cited annexure, which merely lists activities (25:12; 29). According to annexure 2, the major source of funds is the national government (Ministry of Finance)(30).

**Bhoj** No key institutional actor clearly identified in the brief. Funding for the Bhoj Wetland Project comes from JBIC (Japan Bank of International Cooperation) (4:13-15).

**Laguna** The brief has an impressive amount of information on funding, perhaps because LLDA is the only “self-sustaining organization” in this group. At the same time, this information makes it possible to raise questions for even more elaboration.

Sources of income are “regulatory fees and fines, laboratory services, resource user’s fee (aquaculture operation and water abstraction), and ... corporate investments and marketable securities.” (6:1-4). The EUFS (environmental user fee system) was introduced in 1997 for BOD and has been expanded progressively since. (14:15-15:20). Adjudication and litigation is the means of handling non-payments (15:8-9). An LLDA official indicated in the break-out session that this externalization of dispute resolution may cause difficulties for LLDA.

Also, there would seem to be a problem of what is to be done if and as the EUFS proves to be effective in reducing BOD discharge, causing a potential loss of revenue to LLDA (exposing it to possible regulatory capture by the dischargers), or forcing a politically and ethically difficult raising of rates as discharges improve, or pushing the regulator to extend its regulatory net for revenue rather than environmental purposes.

Fishpen fees are a source of revenue for LLDA and lakeshore municipalities, even those without fishpens (17:18-18:6) A remark in the presentation about how each new administration wants to redraw the fishpen map indicates that this is a very political, perhaps patronage, source of influence and funds; as the brief puts it: “The benefits from the industry... have gained the approval of politicians, businessmen, and even the Authority itself.” (36:7-8) This might put the LLDA on the side of the (legal, fee-paying) fishpen operators and against others, including the “illegal” fishers who lack an “alternative source of livelihood” (36:51-53). It is unclear who these fishers are, and whether they are related to the marginal fishermen population of the 1980s? The description of different actors in fishery, legal and illegal, their political connections (e.g., why do local officials, whose governments receive fishpen revenues, come to the aid of illegal fishermen? 36:50-51) and their changes over time is tantalizing.

The brief indicates that even though they are self-generated, funds are inadequate to address all mandates (1:37-38) and funding flexibility is “largely ... constrained by the Philippine Government’s multi-layered approval process for fund solicitation.” (31:8-9) External international funding plays an important role in this narrative, being cited as a major cause of improvements in the administrative capacity of the LLDA, and, interestingly, its credibility (27:13,16).

If the LLDA is allowed to expand into development, as proposed, it will set up a trust fund to implement environmental projects, including research and NGO activities (31:25-29).

**Tonle Sap** Very donor-driven. Heavy reliance on international funding, with NGOs creating initiatives. The brief indicates that there is a lack of consistency of purpose, direction and scope among “well-intentioned international initiatives, facilitation and resource mobilization,” specifically citing specific foci such as the TS Biosphere Reserve (14:8-12).

### 3 . Who uses the lake basin?

**Biwa:** The population of Shiga has changed considerably since the early 1970s, and now has a high percentage of new migrants who work outside the prefecture; a generation has grown up without a memory of a lake without algal blooms. These shifts in population have no doubt affected popular attitudes towards lake management, and perhaps widened the “north-south” divide. In addition, the flow of temporary visitors (tourists) appears to have increased, many but not all of them coming to directly use the lake, and most presumably coming on their own, not on organized tours. This may lead to the visitor industry having a growing voice regarding lake management.

Traditionally, fishery was a major user. Commercial fishery appears to have declined as the catch has gone down. Japan’s fishing cooperatives are relatively strong because they usually have some use rights over waters. In the case of Lake Biwa, they appear to have been unable to regulate their common use of the fishery, leading to overextraction.

**Toba** The Christian Bataks occupy the lake basin. The project team claimed that minority religious status did not handicap relations with higher levels of administration, but it would be good to have this stated clearly, as it is an interesting point. The lake has been an important tourist site, although the brief is very indirect in discussing its importance in quantitative terms.

**Dianchi** Tourists and fisheries are onsite users of the water for amenity and environmental purposes. Industry, municipal (urban sewage) and agriculture are users of the lake, apparently primarily as a drain (unclear if as source). The urban industrial aggregation is uplake, the opposite of the case of Biwa. Industry and agriculture appear to be the most important sectors, but no comparison is made with other economic sectors. Table 2 (p. 18) provides industrial and agricultural output values (is this on a value added basis or using traditional accounting conventions?), indicating that industry is considerably more important economically, although farm runoff contributes 40% of TN and 53% of TP flow into the lake (4:33-35). Indications are made that engineering measures are being taken to reduce discharges from sewage and industry (3: 51-54).

**Xingkai/Khanka** The main economic activities in the basin are “agriculture, mining..., some industry, fish and cattle breeding, forestry and tourism.” (3:56-57) What are the relative uses of the lake and its waters (including inflowing waters) by these activities? Water is drawn from the lake for irrigation – some indicative figures are given of the area irrigated (4:23,28), but how much water is drawn for this purpose and is it enough to affect the lake? Reclamation and industry are carried out “in [the] core of the protection zone and thus is one of the main reasons for environment problems...” (8: 53-54). Agrochemicals are identified as a major contributor to declines in biota in the lake, although pesticide concentrations are declining (9: 29). Allusions are made to forestry as a “user” of the watershed (9:31-37). “Nature,” as defined as that which is protected in a nature reserve, is also a user, but requires human agencies (e.g., WWF) to interpret its interests.

**Chilika** Users include traditional fishermen; the Ramsar Convention and its local advocates; and (until recently) Tata Aquatic Farms Ltd. [prawn cultivation][11:19-21]. Upstream consumptive (quantity, quality, silt) users are in the Mahanandi basin.

**Bhoj** Since these are urban lakes, there is a wide and heterogeneous variety of users. Domestic water users for non-consumptive uses (washing, bathing) [4: 8-9] and for drinking [5:13]; recreation [5:13; 12:35-36] and shoreline real estate developers [presentation; 7:43-44]; *dhobighat* operators [6:5]; performers of rituals, such as idol immersion and floral offerings [6:8]; disposers of sewage, e.g. from growing slums [7:34-35]; and upstream users of water and land in catchment [14:14-25]. The latter are not discussed in much extent.

**Laguna** The report says the lake "is a multiple use resource but the dominant use is for fishery." [1:26] "The least recognized use of the lake is as a medium for the growth of other aquatic life and as part of the flyway of migratory birds." [2:40-41] It has vastly untapped potential for recreation and nature appreciation [2:42]. "Rapid urbanization and industrialization have greatly increased the demand for environmental goods and services." [1:11-12] "It provides food, water for irrigation, power supply, cooling of industrial equipment and lately, ... a source of raw water for domestic supply." [2:36-37] Also transportation and flood control [2:36-38]. Informal settlers form a large part of the region's population, cluster in areas that are prone to severe flooding and that are environmentally sensitive, and generate solid waste that is carried to the lake [13:9-13].

**Tonle Sap** Upstream and downstream (flood control) users of the Mekong. Resident and seasonal migrant populations [2:57]. Commercial and community fishers, the latter with lower incomes than non-fishing families [4:30-36]. Domestic waste, untreated industrial effluent, agrochemical runoff [4:40-42]. Biodiversity and its advocates (Unesco et al) [4: 16-19], with rampant illegal fishing in reserves [6:29-30]. Tourists, especially in the Angkor Wat area [10:44-46]. Allusion was made, I believe in the presentation, to conflicts between resident and migrant populations. This raises questions regarding the mechanism of seasonal migration, and traditional rights and how these have changed etc.

#### 4 . What drives institutional change?

**Biwa:** In general, Japan is known for the glacial pace of its institutional change. The positive side of this is that there is a high level of institutional (organizational) stability. Local governments are often more open to change than the national government. They have sometimes been more progressive in environmental actions, despite the many constraints on their decision-making that are imposed by the national government and its ministries. Shiga appears to have been a local policy innovator within Japan, especially on lake management issues, and has often been well ahead of external political forces such as the national government.

The appearance of algal blooms appears to have been one of the major forcing factors in the anti-phosphate detergent movement, the creation of the LBRI, and the promotion of sewerage. The decline in fish catch has been significant in recent years, but it is not clear what if any institutional response there has been to this.

The report does not mention this, but the new southern suburban population appears to be more "environmental" (as suburban populations tend to be) than the traditional northern agricultural and small-town old-timers. Part of this is economic, part because of the differences in quality of lake water in north and south.

The LBRI and others have been instituted to generate policy-relevant science-based information on the lake. The efforts of these research institutions have considerably advanced the understanding of the lake and its ecological processes. It is unclear, however, to what extent science and awareness of the environmental consequences of previous policies such as shoreline development drive institutional and policy change.

**Toba** NGO (domestic as well as foreign) pressure and influence appears to be important in the Lake Toba basin, as are wider political changes in Indonesia, including the decentralization policy. Foreign and non-local business interests are identified as exploitative of the lake and its residents [17:28-29 Swedish aquaculture; 17:31 hydropower plan; 17:37-39 Indorayon, built by a powerful non-resident Indonesian family]. The brief gives little mention to the well-publicized and often violent protest movement against Indorayon. It would be useful to get an assessment of what if any institutional changes were brought out by or in reaction to the movement. Some literature indicates involvement by churches and village headmen, yet this is not touched upon explicitly in the brief. Mention is made of obvious deterioration in lake quality measures such as oil content and fecal coliform, but it is unclear whether it is possible to trace any direct connection between these data and policy responses.

**Dianchi** It is not entirely clear what drives institutional change here. Further elaboration on this matter would be desirable. "There is no incorporation of scientific information and research in the lake management program." [11:47-48]

**Xingkai/Khanka** International status as Ramsar Center.

**Chilika** Bloodshed, especially by police and publicized in the media [11: 17-19]. The Chilika Bachao Andolan (Save Chilika Movement) in the mid-1990s, identified as a "mass movement," somehow related to the "traditional fishermen community." (1:44-46). It would be helpful to have an assessment of the ways in which this movement was related to institutional change, compared, say, with the World Bank involvement in the river system as a whole. The dynamics of the protest movements (including others than the Chilika Bachao Andolan) may be found in an IDS paper by Ranjita Mohanty and no doubt elsewhere..

**Bhoj** "Drastic alternation of its morphometry and degradation of water quality... prompted the authorities to initiate the action plan for rehabilitation, protection and conservation of the two lakes. The outcome of this initiative was Bhoj Wetland Project, which is funded by Japan Bank of International Cooperation..." [4:11-14]. It is entirely clear from the report what drove change, as deterioration was presumably a long-term process. It may have been the availability of external funding, or its entry onto the agenda of political parties, or citizen protest, or some combination of these factors.

**Laguna** LLDA itself is a driver for institutional change, especially that which will secure its funding and institutional autonomy. "The potential of the lake and its environs for further development and the perceived threats from the rapidly changing character of the lake region" identified as driver of legislation in the early 60s, including establishing the LLDA. [4:28-30] Conflict over fishpens produced some institutional responses [36: 7-44]. Change in political leadership and patronage networks appears to be a stressor if not a driver. Role of science and awareness of state of the lake is unclear in its specific effect on policy.

**Tonle Sap** Designation as UNESCO site [8:11-13]. Unclear if there are any domestic drivers. [Migration and outside economic interests.](#)

## 5. What is the impact of the overall governance framework (including decentralization, level of economic development and integrated basin management)?

**Biwa:** *Discussion:* In Japan, there is a structural tension between central and local governments, due in part to the overlay of a centralized Meiji structure adopted from continental European (especially French) models and a decentralized post-war structure influenced by the US. The centralization of tax revenue collection by the national government and subsequent public works allocation to prefectures has played a key role in the governance and political system in Japan. Also, multiparty politics is sometimes more contested in the higher income prefectures than in the country as a whole, which is largely a one-party democracy. Ministerial territoriality (*tatewari*) is notorious in Japan, although it is unclear how pronounced it is compared with other countries. Perhaps these issues could be discussed a bit more.

**Toba** With decentralization to local governments, coordination on a lake-wide or basin-wide basis is very difficult. Community organization and awareness building appears to be an attempt to provide a counterweight to pursuit of environmentally damaging forms of economic development by local officials.

**Dianchi** Despite decentralization to provincial and municipal levels, governance is still very much top down and engineering-oriented. Non-governmental stakeholders basically not involved in design and implementation of programs. [11:31-32]

**Xingkai/Khanka** Complexity of status as international lake compounded by residual military presence. Russian side in a state of economic freefall, reducing pressure on water consumption but making governance more problematic. [12:1-4] China has a well-developed system of environmental laws and institutions [13:48-50] but implementation problematic, in part due to multiplicity of actors on ground [4:52-53]. China's administration has always had a complex interplay of vertical and horizontal authority (*tiaotiao kuaikuai*) that complicates environmental governance.

**Chilika** Democratic system with changes of political parties and shifts in dominant vested interests lies in background of brief but not made explicit. Basin development along Mahanandi important in governance of

**Chilika.** It would seem that much has depended upon the personality and political skills of the current head of the CDA; to what extent if any are efforts being made to reduce dependence of institutional performance on a charismatic individual? Otherwise, this strength can become a long-term weakness.

**Bhoj** Little in the brief on the governance framework. More information would be desirable.

**Laguna** The Laguna de Bay brief provides an excellent study of the problems and possibilities of an integrated authority. Even though it is set up as a quasi-independent entity with its own regulatory and revenue raising powers, the LLDA has to devote a great deal of effort to maintaining or expanding its autonomy. Every time there is a change of Presidential administration, the continued existence of the LLDA as an independent entity comes into question. Proposals are floated to either merge it into a ministry or to split it up [according to separate functions such as regulation and development?]. The General Manager is a political appointee as well; the brief and presentation indicate that this is seen as a destabilizing factor. A counterargument would be that as a public enterprise, having a political appointee at its head is a way of ensuring its accountability to the public; it also provides someone who can provide the LLDA practical political experience and contacts.

LLDA covers, or intends to cover, the entire Laguna de Bay basin. This puts it in an intermediate position administratively and politically between the national and the local governments. It is not clear whether the consequent structural tension can be fully overcome, or whether its net effect is positive or negative in terms of ensuring representation by shareholders (especially "marginalized" ones such as squatters and informal fishermen) and in lake management.

**Tonle Sap** Cambodia is still recovering from "three decades of extreme violence and political volatility that deprived most everything from the people and the communities" [13:28]. "A major concern pertaining to institutional linkages of the government system is probably the need to adopt the evolving decentralization policies such as Seila against the seriously disintegrated hierarchical system of governance, from the MRC through national and provincial authorities all the way to the poorest and isolated communities across the lake watershed cum flood plains." [14: 4-8] "Well-intentioned international initiatives" lack coherence [14: 8-12]. Ministries "do not seem to maintain a good track record of cooperation" [14: 19-22]. "The overlapping zones, complicated with general lack of zone demarcation, and the changing fishery management practices" complicate initiatives on wetland and biodiversity management. [14: 16-19]

## 6 . How are governance and use conflicts addressed?

**Biwa** Between governmental bodies, through interagency negotiation and political action. In the case of the anti-phosphorus detergent campaign, through cooptation and legislation. Citizens have access to the courts, and one (ultimately unsuccessful) suit in particular was launched against the LBCDP by plaintiffs downstream, but judicial procedures tend to be very slow and biased against anti-development plaintiffs.

**Toba** Major industrial water users (PT. Inalum and Indorayon) pay annual fees for environmental preservation. These appear to go to the district where the plant is located, raising the possibility that the funds are not spent optimally on preservation on the whole lake. In fact, the brief indicates that the use of the funds is "unclear" (21:15) – presumably diverted for other purposes. Also the funds are paid to Districts that do not appear to be in the Toba watershed (cf 12:25-37 and 14:2, 13).

**Dianchi** Unclear; presumably administratively.

**Xingkai/Khanka** Unclear; do not appear to be handled well.

**Chilika** Change in water use rights allowing outsiders access provoked conflict [11:11-13]. There appear to be a number of mechanisms for aggrieved parties to protest, but they do not always prevent violence, including firing on protestors by police [11:15-18]. Culture (Gheri) fisheries were banned by executive order in 2000 (25: 21). Problems from upstream, especially from intensification of agriculture under OWRC, appear difficult to resolve, as are erosion and untreated sewage from western catchment [10:53-11:9] One of primary functions of CDA (at least now) is to resolve conflicts between state and user stakeholders and among governance stakeholders.

**Bhoj** Brief mentions public awareness program, relocation of washing facilities and idol immersion, integrated approaches. Little on conflict management institutions.

**Laguna** Unlike Chilika, LLDA co-opted fish pens (or vice-versa) as a source of revenue (with allocation of pens at the whim of each new administration).

**Tonle Sap** Creation of plans, legislation, decentralization program. No effective conflict management mechanism noted.

## 7 . How is successful implementation carried out?

**Biwa** Many questions at the workshop were about implementation. As noted, there appears to be a high level of compliance with regulations once enacted. If this is true, it is remarkable and deserves some elaboration. It would be nice to know more about the role and relative importance of non-regulatory (informal regulatory?) mechanisms such as administrative guidance and pollution control agreements.

**Toba** Popular protest closed Indorayon for several years, but not forever. Otherwise, unclear if there are any examples of successful implementation.

**Dianchi** Reliance on engineering works.

**Xingkai/Khanka** Unclear if there has been any successful implementation.

**Chilika** Engineering project to improve lake quality. Withdrawal of use rights of outsiders. Development of CDA as coordinating agency.

**Bhoj** Relocation of polluting activities. Engineering works.

**Laguna** The Philippines has both a well-developed legal system and an entrenched patron-client culture. Licensing of fishpens. (Perhaps) the progressive extension of environmental use fee system. Attention to providing recurring finance to coordinating agency.

**Tonle Sap** Unclear if anything has been successfully implemented.

## APPENDIX 1 Institutional Analytic Framework for Lake Basin Management (draft as of 11 March 2004)

The following is a sketch of an analytical framework delineating factors that could be considered in analyzing lake management institutions and for making reforms and modifications in institutional performance in lake basin management. The framework is intended to cover lakes anywhere, but has been included here as it has lain behind the selection of the seven overarching questions used to filter the cases of the Asian lakes. One thing that this framework indicates is the number and complexity of potentially significant institutional factors. Given this reality, the actual management of a given lake basin must be more of an art than a rote application of analytical principles.

1. Definition: "Institutions" here are "rules-in-use."
2. Towards a framework: fit, interplay, and scale
  - a. *Fit*: matching ecosystem properties and human governance activities [cf. World Lake Vision (WLV) Principle 1]
    - i. Sources of mismatches
      1. Poor scientific knowledge or understanding of indigenous knowledge
      2. Institutional constraints
        - a. Social institutions
        - b. Political governance
        - c. Jurisdictional boundaries
        - d. Bureaucratic politics and cultures
        - e. Embedded interest groups
        - f. Institutional rigidity
      3. Rent-seeking behavior
        - a. Economic
        - b. Political opportunism
    - ii. Examples of measures to address persistent mismatches
      1. Basin development and management authorities
      2. Policy-oriented research institutes
      3. Continuous review of implementation
      4. Institutional flexibility
      5. Precautionary principle
  - b. *Vertical interplay*
    - i. National government, local government, local communities
    - ii. International actors (NGOs, IFIs, capitalists etc.) and domestic parties
    - iii. Integrated management vs. subsidiarity/decentralization
  - c. *Horizontal interplay* (e.g., between agencies or prefectures)
    - i. Who are the key stakeholders
      1. Administrative units (e.g., prefectures)
      2. Bureaucratic units (e.g., agencies)
      3. Key non-governmental stakeholders
        - a. Formal, informal
        - b. Regulator, user
    - ii. How do they work together (or in opposition)
  - d. *Scale*
3. Examples of lake management problems with institutional implications
  - a. Physical signs of mismatches of fit [and responses]
    - i. Pollution [and its control]
    - ii. Decline in fisheries [and their management]
    - iii. Eutrophication [and countermeasures]
    - iv. Decreased biodiversity (including introduction of exotic species) [and countermeasures]
    - v. Shrinking of the lake size [and control over lake reclamation and occupation of lakeshore buffer areas]
    - vi. Reduction or intensification of inflow [and regulation of consumptive uses, watershed management (+responses to climatic change)]

- b. Institutional signs of mismatches
  - i. The entire basin is not adequately considered in lake planning and management [WLV Principle 2]
  - ii. Decisions are made reactively, especially to crises [WLV Principle 3]
  - iii. A “project culture” dominates, inhibiting long-term decision-making, sustained commitment to goals, broad stakeholder involvement and, possibly, good governance [WLV Principles 3, 5, 6, 7]
  - iv. Inadequate governance and accountability systems, including an inadequate legal system (enabling framework, specific laws and regulations, implementation, fairness and efficiency etc.) [WLV pp 8-9]
  - v. Funding and revenue inadequacies and distortions
  - vi. Conflict among overlapping agencies
  - vii. Conflicts between central government, local government, local communities, and other stakeholders (including inadequate coordination and participation)
  - viii. “Invasive economic species”: mismatches between outsiders linked to global markets and traditional (“subsistence,” non-global) users
  - ix. Ignorance of ecological or socioeconomic conditions [WLV Principle 4]
- 4. Institutional themes related to the above problems
  - a. External support: strategic intervention
  - b. Integrated water resources management
    - i. Role of basin authority
    - ii. Institutional learning
    - iii. Social learning (social capital)
  - c. Property and use rights [especially salient with fisheries and watersheds?]
  - d. Relative roles of markets, hierarchies, and collective [especially fisheries]
  - e. Membership: who are the “stakeholders” (especially in “open systems”)? What is their proper role in project formulation, implementation and assessment?
  - f. Conflict resolution or maintenance
  - g. Generation, storage and dissemination of useful information
    - i. Policy-oriented research institutes
  - h. Efficient, accountable and financially sustainable use of water and land while addressing poverty
  - i. Lake user involvement/empowerment
- 5. Institutional questions applicable to the study as a whole
  - a. How can we measure success or failure of institutional measures?
    - i. Simple institutional diagnostics and design implications (from Young)
      - 1. Ecosystem properties
      - 2. Actor attributes
      - 3. Implementation issues
    - ii. Other ways of measuring
  - b. How transferable are institutional experiences?
    - i. Developed country to developing
    - ii. Developing country to developing
  - c. What kind of strategic intervention appears to be most effective? (Special focus on GEF/non-GEF)
    - i. Program foci of GEF (biodiversity, international waters)
    - ii. Regional foci (especially Africa, developing country)[look at exceptions]
    - iii. Funding policies and mechanisms [I may need some help on this]
    - iv. Indications of institutional catalysis (or lack thereof)[ditto]
    - v. GEF as part of a donor portfolio
  - d. What are the strengths and weaknesses of formal international institutional mechanisms cf. informal lake alliances, established informal networks?

## Appendix 2 Memorandum on breakout session discussion of Asian Lake institutions, 4 September 2003

Moderator: J. Nickum (JN)

Lakes not represented: Biwa (except for JN), Xingkai/Khanka

JN proposed five areas for discussion. Given the limited time, we focused on covering the first three, especially #1 and #3.

- 1 What are the leading institutional problems? [leaving it up to the members to interpret “institutional” in their own ways]
- 2 Who are the stakeholders and how are they involved (or not)?
  - Distinguish the management/governance stakeholders from the actual users of the lake.
- 3 What issues arise in vertical-horizontal interplay? In particular, what is the role of a coordinating/development authority?
- 4 What are the leading issues in the governance framework? [Not dealt with explicitly in discussion.]
- 5 Where are the gaps in the briefs? [Not discussed explicitly.]

A. Leading institutional problems identified by the group fall under eight categories (in order raised):

- 1 Coordination
  - (a) Within government agencies
  - (b) Between the government and civil society
    - ① Domestic users: WUAs, fishery cooperatives, etc.
    - ② NGOs: domestic, international
  - (c) Between multiple donor programs and their imperatives
  - (d) With politicians
- 2 Finance
  - (a) Transparency, especially of the government budget
  - (b) Accountability in the fee collection process etc.
- 3 Limited expertise, professional capacity
- 4 Information generation, exchange, and retention
- 5 Institutional sustainability (related to lack of retention of information, loss of institutional “memory”)
- 6 Lack of trust
  - (a) In government (based on poor governance, past performance or lack of it)
  - (b) Due to perception of failure, generated by media focus on sensational events
- 7 Decision-making process
  - (a) Decisions made at inappropriate locations or levels
  - (b) Absence of transparency
- 8 Inappropriate organizational structure

B. Vertical interplay problems

- 1 Cumbersome approval process in vertical systems – need a single window.
- 2 Legislative rigidity in face of change, absence of legislation, lack of implementation.
- 3 Different levels and sectors of government are operating on the ground (in the water).
- 4 Authorities with approval powers lack expertise.
- 5 Conflict settlement mechanisms (e.g., court cases) often prolong conflicts
  - (a) Need to develop and give preference to alternative and informal dispute resolution (reconciliation, mediation)
  - (b) This may include giving the lake agency adjudicative authority (e.g., LLDA)

C. Horizontal interplay problems

- 1 Agencies’ (and other agents’) responsibilities are unclear and/or overlapping
  - (a) E.g., China: Water Resources, Fisheries, Resources, Agriculture
  - (b) E.g., Orissa and M.P.: Water Resource Dept., Irrigation, agricultural universities, Fisheries, Tourism, Environment, Transportation, Revenue/Finance, Cooperatives, water user associations, Forestry, Urban, Industrial, Land Use and Flood, Town and Country Planning

- 2 Interministerial coordination can be time consuming, and result in poor phasing with funding schedules

D. Who are the coordinating (C) and regulating (R) authorities? (note decentralization as a forcing factor in some cases)

- 1 LLDA (under DENR) (C & R)
- 2 Chilika DA (under the Revenue Department)(C)
- 3 Madhya Pradesh Lake Authority
- 4 Cambodia National Mekong Committee (C)
- 5 Water Resources Department in Orissa and MP (for basin planning)(C & R)
- 6 Dianchi Protection Committee and Bureau (interagency) (C)
- 7 Authority is under construction for MP urban lakes
- 8 Department of Lake Biwa and the Environment, Shiga Prefectural Government

E. What are the lessons of LLDA? (Nepomuceno)

- 1 It is important to have a legal framework and authority that allows administrative flexibility to engage in “ready, fire, aim” approaches: permitting, policy, financing, and implementation
- 2 The agency needs to assert its authority, to let the users know it exists (via licensing, permitting, and coordinating projects)
- 3 Things to avoid where possible:
  - a. Government appointment and dominance of the policy board
  - b. Imbalanced representation of stakeholders
  - c. Brief tenure of general manager based on political changes; appointment sometimes without regard to qualifications
  - d. Funding that does not carry over beyond a project
- 4 Note: Other places (e.g., Orissa) have an alternative coordinating model with stronger government involvement (including the chief minister) but broad representation within the government and with other stakeholders at the table.

F. Stakeholder issues

- 1 Differences in size and power
- 2 Problem of legitimacy: who has standing, and how representative are institutions claiming to speak for them

### Appendix 3. Whose perspective is heard in the brief, and whose is not?

*Overview.* The Asian papers were written from a number of different perspectives, sometimes making them difficult to compare. Lakes Chilika and Laguna de Bay are written from the perspective of their parastatal development authorities. Lake Biwa tends to take a local government view, as to some extent do lakes Bhoj, Dianchi and Xingkai/Khanka. Lake Toba is considered from an NGO/community development perspective, while Tonle Sap is presented by involved outsiders as an “international commons”.

**Biwa:** Shiga Prefecture, which is the primary coordinator and regulator, and shares developer status with the private sector, the central government (Ministry of Land, Infrastructure and Transport, formerly MoC Kinki Bureau) and downstream prefectures/municipalities.

*Implications:* The focus is on governmental policy, plans and regulations, and on intergovernment (cross-boundary) negotiations. The Prefectural government is spoken of as if it were a uniform entity. How things work *within* the “black box” of Shiga government is dealt with lightly – e.g., who speaks for the lake within the government, who is pro-development, and how changed over time. It is implied that regulations once enacted are complied with – true? If so, why? Popular opinion is also treated as if it were uniform: “The people of Shiga ... “ Is this just rhetoric or is it based upon some measure of public opinion?

**Toba** International organizations: UNESCO, LakeNet. Their focus is NGO activity, particularly community organization and participatory development. The arguments for this focus are that more direct community involvement can avoid wasteful aspects of top-down development and “bridge the gap between national policy and local practice.” (23:17-18) Allusion is made to other stakeholders such as “government, business, industrialists, researchers, environmentalist even politicians” but without much detail on just how their interests specifically play out. Even the “community” is undersketched –there is nothing in the brief discussing religious dimensions and the role of the church, which is a core traditional organization in the community whose support or opposition could be critical to success.

Decentralization is seen (perhaps incorrectly) as opening the possibility for community involvement (23: 10-12), although there is little consideration of the pros and cons of supra-community governance alternatives aside from the LTMB and the Coordinating Board. The linkages between these and the community are sketchy as well.

**Dianchi** Appears to be from an academic/bureaucratic perspective. It raises issues in response to the checklist but does not elaborate on them. The report is very skimpy on institutional matters (or engineering ones, for that matter). Would benefit from much more explanation of issues, alternatives and choices.

**Xingkai/Khanka** Government think tank (CRAES)? Chinese perspective, although with consultation with Russia.

**Chilika** Chilika Development Authority. The report has a good section on linkages with other stakeholders. Tendency to report Chilika basin as close to stand-alone without contextualizing it as tail-end of larger river basin system (nb Tony Garvey’s critique).

**Bhoj** Downstream urbanites who are researchers.

**Laguna** LLDA, a coordinator, regulator, and (in theory) developer. May lead to inadequate presentation of views of other major players, such as local governments.

**Tonle Sap** International discourse (UNESCO), reflected in “international commons” rhetoric. May tend to underplay local concerns because of lack of mechanism to articulate them independently of foreign financed agendas.