CRBOM Small Publications Series No. 42

The case for the corporate RBO

by

Fahmi Hidayat and Raymond Valiant

Center for River Basin Organizations and Management
Perum Jasa Tirta 1

October 2011

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Contributions are most welcome - in English or in Bahasa Indonesia.

The authors:

Fahmi Hidayat, Deputy Director, CRBOM and Chief of Management and Technology Development Section, Jasa Tirta 1 Public Corporation, Indonesia
hidayat.f@gmail.com

Raymond Valiant,
Manager of Water Service Division V of Jasa Tirta 1 Public Corporation, Indonesia
raymondvaliant@gmail.com

CRBOM
Center for River Basin Organizations and Management,
Solo, Central Java, Indonesia
www.crbom.org
info@crbom.org

in collaboration with

Jasa Tirta 1 Public Corporation
The Brantas and Bengawan Solo River Basin Management Agency, Malang, East Java
www.jasatirta1.co.id

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Acknowledgement

The starting point for this paper was a joint CRBOM/PJT1 working paper prepared by the authors and colleagues in March 2011. The paper was expanded to a discussion paper as a part of the basis for an *'International Seminar on Corporate River Basin Organizations in Asia',* held by NARBO in Malang, West Java, in June 2011, with participation by Asian RBO champions, decision-makers, academics, opinion leaders and resource persons; and institutional representatives from ADB, ADB Institute, CRBOM, JICA, JWA, NARBO and UN-ESCAP. In the process, many people provided information and guidance, including messrs. Wouter Lincklaën Arriens, Dennis Von Custodio, Eddy A. Djajadiredja, Ir. Harianto, Ir. Isnugroho, Ian Makin, Koichi Takano and Tjoek Walujo Subijanto. The authors are grateful to these people and to the participants in the NARBO seminar for comments and observations, many of which have been carried forward to the paper.

Acronyms and abbreviations

ISO:	International Organization for Standardization
IWRM:	Integrated water resources management
JICA:	Japan International Cooperation Agency
JWA:	Japan Water Agency
LLDA:	Laguna Lake Development Authority
MDBA:	Murray-Darling Basin Authority
NARBO:	Network of Asian River Basin Organizations
PJT1:	Perum Jasa Tirta 1 (Jasa Tirta 1 Public Corporation) (covering the Brantas and Bengawan Solo Basins, West and Central Java)
PJT2:	Perum Jasa Tirta 2 (Jasa Tirta 2 Public Corporation) (covering the Citarum Basin and part of the Ciliwung-Cisadane Basin, West Java)
RBC:	River basin committee
RBO:	River basin organization
TVA:	Tennessee Valley Authority
YRCC:	Yellow River Conservancy Commission

Summary

Observations from Asia and beyond demonstrate that the corporate RBO has a particular potential for adding momentum to water-related development. The benefits include

- Good performance: Flexible mobilization of resources; quick response to new challenges and opportunities; free to implementat its own, tailor-made management systems; and free to implementat required capacity development and human resources development.
- A much shorter way from decision to implementation: Promotion and implementation by in-house capacity, rather than by some line agency that can be external to the RBO that has raised the need; and direct financing - separate from a lengthy public investment planning procedure.
- Better basis for basin-level IWRM: Development initiatives can be promoted as entities, rather than being split into different sector components by line agencies during their investment planning; less need of inter-agency synchronization of related (or inter-dependent) initiatives; and investment priorities being made in an integrated perspective rather than as a combination of segregated sector priorities.

The benefits of a corporate RBO are related to operational needs and cultural features regarding

- the time horizon for investment planning and related decisions;
- performance orientation; and
- attitude to innovation.

1 Introduction

This paper presents the case for the corporate RBO as a platform for IWRM-based, basin-level governance.

It has largely been extracted from a working paper prepared by the authors and colleagues in March 2011,[1] proceedings of the *'International Seminar on Corporate River Basin Organizations in Asia',* held by NARBO in Malang in June 2011, and a broader background paper prepared for NARBO in July 2011.[2]

2 Why a corporate RBO?

The President of the United States, Franklin D. Roosevelt, formed the Tennessee Valley Authority in 1933 in connection with his *'New Deal'* programme for recovery from the Great Depression. His wish was

> *'a corporation clothed with the power of government but possessed of the flexibility and initiative of a private enterprise'.* [3]

Figure 1: President Roosevelt signing the Tennessee Valley Authority Act (1933)

Photo courtesy of Tennessee Valley Authority

Tjoek Walujo Subijanto, President Director of PJT1, summarizes the strengths of a corporate RBO as follows:

- Flexible mobilization of resources;
- quick response to new challenges and opportunities;
- free to implement its own, tailor-made management systems; and
- free to implement required capacity development and human resources development.

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1 CRBOM and PJT1 (March 2011)

2 Ir. Isnugroho and Tue Kell Nielsen (July 2011)

3 Website of Tennessee Valley Authority, www.tva.org

3 Features of the corporate RBO

3.1 Types of RBOs

General

RBOs can exist as for example councils; committees; commissions; agencies; authorities; and corporations.[4] A distinction can be made between three *'model types'*:

- *The council (or river basin committee, RBC)* can assemble government and non-government representatives. It can have important responsibilities with little or no formal authority. It may have no staff; secretariat functions can be provided externally (for example by a public RBO). It typically provides guidance on for example water-sharing and water-related development. (Such guidance can be highly valuable, and appreciated by decision-makers, for example if it covers sensitive choices).
- *The public RBO* is a part of the executive branch of the state (with the status of a government body). It is often placed under a ministry, and is managed and staffed by government employees. It can be involved in regulation and enforcement and many other basin-level tasks.
- *The corporate RBO* is owned by the state but operates as an independent legal entity. It can employ its own staff, can buy, own and sell property, and make many decisions on its own, within limits decided by the state and subject to supervision by the state. It can be involved in implementation, operation, maintenance, and many other basin-level tasks.

Table 1: Model types of RBOs

	Council/RBC	***Public RBO***	***Corporate RBO***
Ownership	Autonomous	The state	The state
Governing board	None; reporting to a ministry[5]	None; typically having status of a ministerial department	Representatives of one or several ministries
Legal basis	Law and ministerial decree	Law and ministerial decree	Law and formal registration
Typical tasks	Guidance on water-sharing and water-related development; and other tasks	Water allocation, planning, operation and maintenance, monitoring, regulation, enforcement; and other tasks	Planning, implementation, operation, maintenance, monitoring; and other tasks
Management	Council head (governmental or non-governmental), serving as a facilitator	Government-appointed head within the public administrative system	CEO-style director with high autonomy, responsible to the governing board

4 For example, The Philippines applies five types of RBOs: Authority, commission, council, project management office, and inter-agency committee. Indonesia also applies five types: Council, central government RBO, provincial government RBO, regency/municipal water resources services, and corporate RBO

5 In Thailand, the RBCs report to the National Water Resources Council

	Council/RBC	*Public RBO*	*Corporate RBO*
Staff	No staff; secretariat services provided by the government	Government employees, with salaries and career patterns based on seniority	Employed directly, performance-based salaries and career patterns
Operation	Consensus-oriented dialogue with water users and other stakeholders	Rule-based (for the sake of transparency, an important feature in public administration)	Responsive; related to demands and opportunities
Budget	Government budget	Government budget	Prepared autonomously, approved by the board
Financing	Government funding	Government funding	Direct revenue from operation (user fees); government subsidies; performance contracts; loans; bonds; grants

Adapted after Tjoek Walujo Subijanto (March 2011

Some RBOs (particularly big ones) combine some of these characteristics, reflecting national law, traditions and preferences for public administration, as well as demands and opportunities in a particular river basin. Water councils/RBCs can receive secretariat services from a public agency, perhaps a public RBO or river basin office.

Different types of RBOs can operate side by side in the same basin, sharing various tasks between them. This is seen in Indonesia, for example in Bengawan Solo Basin, which is served by a water council, a public RBO and a corporate RBO (PJT1).[6]

Financing

The public RBO is funded by the government in accordance with good national housekeeping. The corporate RBO is funded independently (but the government can contribute).

Revenue streams can from case to case include taxes (including green taxes); fees (water, sewage disposal, electricity, various services and resource utilization); subsidies and cross-subsidies; and performance-based contracts with the government, linked to actual services. [7] The corporate RBO may share a part of its revenue with the state, for example if it manages a large hydropower potential.

Apart from cash flows, the state can support the corporate RBO by loan guarantees (without affecting the public cash flow).

Organizational culture

There are important cultural differences between a public agency and a corporation.

The ultimate (and highly important) purpose of the former is to serve the minister in fulfilling his or her responsibilities. This implies a top-down delegation of authority, responsibilities and tasks, and a high degree of predictability. The need of transparency indicates rule-based decisions.

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6 Please refer to Sudarsono (September 2009) for an introduction to the Bengawan Solo Water Council

7 Such as flood protection and morphological management of the river network (in Indonesia) and urban drainage (in Japan)

The ultimate (and equally important) purpose of the corporation is to serve the customer (or beneficiary), which indicates a strong customer orientation.

The typical career in the government system is life-long, based on *'universal'* (and hereby general) qualification criteria, developed during regular rotations between different postings, for example within a ministry. This is a good thing for the ministry (and for the national level of management), but can cause some disruptions at the basin level, for example if an entire generation of staff is shifted at the same time.

In comparison, the corporation can employ people for shorter periods than a lifetime, but it can also retain key staff if so desired; and it can maintain a dual-track career pattern for generalists (including managers) and specialists. Promotion, remuneration and other incentives can be based on performance, rather than seniority.

The performance of the RBO

The performance of an RBO is related to its mandate and requires a suitable harmony between mandate, authority and capacity.[8]

The particular benefits of the corporate RBO can be influenced by factors such as

- the time horizon for decisions, including political decisions and investment planning;
- performance orientation (and risk adverseness);
- incentives, motivation factors;
- attitude to innovation and to organizational adaptation;
- hierarchy (or *'power distance');* allocation of (formal and informal) authority within the organization;
- dispute resolution capacity - internal and external;
- attitude to external knowledge-sharing and collaboration; and
- attitude to internal knowledge-sharing and collaboration.

Many of these factors will deviate between a public and a corporate RBO.

3.2 Implications and benefits of autonomy

General

The strengths of the corporate RBO are derived from its autonomy, which can vary from case to case, depending on the adequacy of its financing and on the actual involvement of the state in its day-to-day operation. To the extent that it is in a position to implement its own plans and development initiatives (within its mandate and financial capacity), it can respond faster to needs and opportunities. Also, it can provide a relative strengthening of the basin-level perspective as compared with the public RBO (where funds are allocated in the broader, national perspective).

There are three particular strengths of the corporate RBO:

- ***Good performance:*** The public corporation can perfom well in terms of for example formal status; governance; human resources, technological

[8] Please refer to Slamet Budi Prayitno (August 2011)

development; organizational adaptation; cost recovery; and financial efficiency. This was demonstrated in Indonesia, where the two corporate type RBOs were top-rated in a recent national RBO performance benchmarking.[9] Among the reasons is a better ability to adapt to new needs and new knowledge. It is easier for a corporation to re-define responsibilities, hire new staff, or create a new department, if the need arises

- ***A much shorter way from decision to implementation:*** Once an investment (or other development) need has been identified as useful, it can be promoted by in-house capacity, rather than by some line agency (or agencies) that can be external to the RBO that has raised the need. Subject to satisfactory financial feasibility and acceptable impacts, the investment can be financed in different ways, including loans - separate from a lengthy public investment planning procedure
- ***A better basis for IWRM-based, multi-sector, basin-level development:*** Development initiatives can be promoted as entities, rather than being split into different sector components as a practical precondition for promotion by line agencies during their (sector-based) investment planning. This reduces the need of an inter-agency synchronization of priorities, and allows for investment priorities being made in an integrated perspective rather than as a combination of segregated sector priorities. Also, the corporate RBO can focus more clearly on its river basin, where the public RBO, as a part of the government system, must apply the national perspective to some extent.

Relations between the government and the corporate RBO

The benefits of the corporate RBO are related to its partial independence from the government system. Still, any RBO, irrespective of its status, is in need of political support.

The balance between government control and independence is important. The government provides legitimacy and over-all directions, but can leave the operation to the corporation. A comprehensive day-to-day involvement would blur the distinction between the public and the corporate RBO, and would reduce the intended particular benefits of the latter - including the benefit of independent, external performance supervision by the state.

The statutes of the corporate RBO are issued by the government. They will define its mandate (often including a geographic delineation), the related authority, relations with various government bodies, and the flow of revenue. The RBOs investment planning, covering major financial obligations, would need endorsement from the state, as it is the case for private corporations that require endorsement from its owners.

The involvement by the state in the operation of the corporate RBO can take place via a governing board with representatives from the government. This can support a clear delineation of tasks and responsibilities. [10]

Relations with the private sector

The private sector can contribute significantly at the basin level, both within planning, financing, implementation and operation.

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9 Please refer to Sungguh, Harry M (December 2009) for details

10 Please refer to OECD (May 2010) for a discussion, with examples from many Asian countries. Recommendations on the responsibilities of the board are made by OECD (April 2005). Observations on the role of the board are made by Hashim Mohammed (May 2010) and by Qin Yongfa (May 2010)

The role of the private sector at the basin level

The private sector offers a perspective that in some ways is complementary to the perspective of the public sector, in terms of scoping, time horizon, and financing.

The private sector can contribute to water supplies, sanitation and waste disposal.

In basin-level development planning, the private sector can contribute qualified opinions and guidance about for example water allocation, efficiency improvements, infrastructural development needs, and livelihood generation.

The corporate RBO can liaise with the private sector, from case to case in terms of knowledge-sharing, dialogue during planning and decision-making, financing or co-financing of development initiatives, and general business relations. A good informal authority is helpful in this connection.

Ability to adapt

The corporate RBO is in a particular position to adjust and develop its operation in response to new demands and better knowledge. Experience from PJT1 shows that adjustments and adaptation options can include

- strategic planning in support of present or desired future core competencies;
- stakeholder feedback for guidance of governance and institutional development;
- knowledge base development, including (but not limited to) data collection, data management and information systems, and related dissemination;
- streamlined collaboration with government agencies NGOs and communities;
- public relations and awareness-building;
- human resources management;
- responsiveness in service delivery;
- technological adaptation and innovation;
- various kinds of performance monitoring;
- management of occupational health and safety;
- full or partial cost recovery;
- implementation of various enforcement measures; and
- general quality management with audits.

3.3 Preconditions for successful operation

General

Many preconditions for successful operation are shared between the different types of RBO.[11] They include

- ***political support and commitment;***
- ***good relations with water users and other stakeholders,*** including institutional stakeholders, such as sectoral line agencies, and non-governmental organizations and individuals. Confidence and respect from stakeholders (and the general public) are preconditions for support to those many decisions that do not allow for complete consensus around the table. Apart from active dialogue, good relations can be supported in many ways, including a shared vision for the basin, and a clear mission for the RBO.
- ***Good leadership*** is required for any type of RBO, but in different ways. The head of a council must build confidence among the council members and the bodies they represent, and facilitate agreed decisions. The head of a public RBO must assure vertical liaison between the minister and the people, and coordination within the government system. The corporation is headed by a director with a high autonomy, who must have a particular ability to make timely decisions and generate internal and external support to their implementation. There is a related need of a particular accountability. This can be supported by a strong corporate culture (based on a clear mission) and team spirit, and a high level of internal communication, so that people know not only what they are doing but also why they are doing it.

Constraints

Constraints to operation can exist on the day the RBO was formed, or they can emerge in the course of time. Inherent constraints can be for example

- overlap of mandates between the RBO and existing agencies, or an incomplete transfer of mandate when the RBO was formed (for example if a responsibility is relocated without the supporting expertise and capacity). This can happen if some tasks are well undertaken by existing agencies but are shifted to a new RBO, perhaps under a different ministry;
- the absence of a water law that defines water as a public good (preventing orderly water-sharing);
- institutional barriers - for example if different ministries are responsible for irrigation and agriculture, or for surface water and groundwater;
- rapid and forced staff rotation between a (public) RBO and its sister agencies (according to government practice) (whereas a gradual and voluntary staff rotation is an advantage);
- imperfect interaction with the water users and/or the private sector and/or the academic society and/or the NGO community; or
- if the RBO is assigned tasks that can be difficult to combine, such as regulation and implementation, or structural development and environmental preservation.

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[11] Please refer to Slamet Budi Prayitno (August 2011)

Constraints that develop over time can occur for example

- if funding becomes inadequate:
- if the political support becomes inadequate;
- if the confidence of decision-makers, water users and other stakeholders for some reason becomes inadequate;
- if council members or board members for some reason become unable to agree on important negotiated decisions (perhaps in connection with reallocating a finite amount of water or distribution of finite funding);
- if basin-level, inter-sector (IWRM-based) development planning does not link up with national or province-level sector planning; or
- if the mandate of an RBO simply *'outgrows'* its authority and capacity, so that it is no longer in a good position to perform according to expectations.

Some of these constraints can be mitigated by IWRM principles, such as balancing immediate and long-term benefits, and active stakeholder participation.

The significance of capacity and orientation

In-house ***managerial capacity and technical expertise*** are major assets of a corporate RBO, and the value of such capacity is often a major incentive to choose this type of RBO in the first place.

A corporate RBO must have ***a certain size*** to activate its potential benefits. These are related to its independence, but this will not emerge unless a *'critical mass'* is available for operation - otherwise the organization will remain dependent on external capacity for its management, decision-making, expertise and financing. As one yardstick, the capacity should be adequate for managing large investment projects.

Another measure in support of the independency of a corporate RBO is ***a separate source of income*** that can contribute visibly to its cost recovery.

A clear mission, mainstreamed into the operation, is not only as a beacon for team performance, but also as an external signal of the identity and purpose (and social significance) of the corporation.

Respect and confidence from water users and external partners, as well as the general public, can support the operation of a corporate RBO (as it is the case for other types of RBOs). This, in turn, can be supported by openness (ready access to information, knowledge-sharing and dialogue). A bit of promotion can be helpful. All corporate RBOs have nice websites with various information about themselves and their useful work. Several have various outreach activities for social interaction, perhaps even full-blown Corporate Social Responsibility (CSR) programmes, and external professional networking and liaison.

The evolving RBO

Achievement of a prosperous and healthy river basin requires prudent and responsive basin-level governance, maintaining a clear sense of direction.

Many of the new challenges require far-reaching decisions and timely implementation (as well as comprehensive investments) within for example water supply and sewage infrastructure; irrigation; storage capacity; flood protection; and morphological management. Such decisions have particular inter-sector implications, increasing the need of basin-level dialogue and coordination.

This will affect the appropriate status of the RBO, often in the direction of a stronger orientation towards implementation.

4 Discussion

An *'International Seminar on Corporate River Basin Organizations in Asia'* was held by NARBO in Malang in June 2011. Asian RBO leaders shared their experience and thoughts on basin-level governance.

Ir. Harianto (Director of Planning and Development, PJT1) informed the participants about the Brantas Basin, East Java.

The water infrastructure has been developed since 1961 under a sequence of 3 master plans, with a total investment of 11 trillion IDR (or around 120 million USD).

After construction, it was necessary to maintain the functioning of the completed infrastructure in order to ensure maximum benefits, to achieve the designated technical life span, and to achieve sustainable development. Adequate operation and maintenance must be conducted by a permanent institution, with professional staff and adequate budget. PJT1 was formed for this purpose.

Its financing combines the Beneficiaries Pay Principle (for hydropower, raw water for industry and drinking water), the Polluter Pays Principle (under preparation); and the Government Obligation Principle (for irrigation and flood control).

PJT1 has a strong commitment to contribute to the triple bottom line (of economic, environmental and social benefits) in the Brantas and Bengawan Solo River Basins.

Mr. Eddy A. Djajadiredja (President Director of PJT2) shared his experience:

The Citarum Basin is in a strategic position to support the development of West Java. It has a large additional potential for water supplies for industrial and urban development in the region. Establishing this full supply potential will require an improved operational management for the already existing facilities. This involves an improved accounting of water demands and water availability, measures to improve and safeguard water quality, a better monitoring system, and appropriate conveyance systems. At the same time, there is a call for demand management measures for efficient resource use.

Water resources management depends on collaboration and partnership at all levels, from individual citizens to international organizations. It must be based on political commitment, and broad societal awareness of the need for water security and the sustainable management of water resources. There is a need for coherent national and, where appropriate, regional and international political will to overcome fragmentation, and for transparent and accountable institutions at the basin level.

PJT2 is improving the management of water resources in the Citarum River Basin (West Java), aiming to make water everybody's business - government agencies, non-governmental organizations, the private sector and the international community.

This requires (1) governance, management, and stakeholder participation to organize and manage water infrastructure and water resources as an integral part of the natural cycle, (2) mobilizing financial resources from government funds, water tariffs, private investment and external aid, (3) capacity-building, technology transfer and investing in people, to strengthen the performance of public and private organizations, and in support of water-wise technologies.

Mr. Tjoek Walujo Subijanto (President Director of PJT1) advised that the choice of an appropriate RBO should reflect

- the lowest possible unit of IWRM (river basin or administrative boundary);

- the level of economic benefits (possibly applying the cost recovery principle); and
- government policy on tariffs and fees for water supplies and wastewater disposal, and support to public infrastructure investment.

If possible, three types of RBO can be set up: A council, a public and a corporate RBO. They must have clear cut tasks and responsibilities and effective collaboration mechanisms.

5 Bottom line

There is no *'one-size-fits-all'* for RBOs. What is useful and practical at one time and at one place may be less useful and less workable at a different time or a different place. Experience from elsewhere is always valuable but must be considered with an open, yet critical mind.

Many challenges face Asia's river basins, including new ones. These require far-reaching decisions and timely implementation (as well as comprehensive investments) within for example water supply and sewage infrastructure; irrigation; storage capacity; flood protection; and morphological management.

This must be reflected by the type of the RBO, and its mandate, authority and capacity for sharing a finite amount of water, provision of supplies and services, management of the aquatic environment, and expansion of the knowledge-base.

Preconditions for success include

- political support; with the corporate RBO in particular need of strategic (over-all, long-term) support;
- good relations with water users and other stakeholders; and
- good leadership. The head of a corporate RBO must be visionary, make timely decisions and generate internal and external support to their implementation.

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Appendix A: Terminology

Below are given general explanations of the terminology applied in this paper. Several terms can have a more precise meaning, perhaps defined by law, which can be different from one country to another.

Source: Isnugroho and Nielsen (July 2011)

Authority (of an RBO): *Formal authority* is the powers assigned (by law, decree or statute) to the RBO about which decisions it can make and implement - for example related to water allocation, fees and licences. *Informal authority* is the respect and confidence it enjoys from decision-makers, water users and other stakeholders, as a basis for their support

Corporate RBO: An RBO with the status of a corporation, owned by the state, and responsible to the state for its activities, but otherwise operating as an independent (and financially autonomous) legal entity

Corporation: An organization registered as a legal entity in accordance with national law

Legal entity (or juridical entity, or juristic person): A person or a body (such as a company or corporation) that can make legal agreements, own (and borrow) financial assets, generate and allocate revenues, employ staff, pay taxes, and be liable for its actions. Details vary according to national law

Mandate: A set of tasks (to be undertaken by an RBO) (such as for example, from case to case, water allocation, basin-level development planning, supply of water and sanitation, hydropower generation, flood management, monitoring, and others)

Performance (of an RBO): The degree to which an RBO achieves results in accordance with its mandate; or *'its ability to do what it is expected to do'*

Public RBO: An RBO with the status of an entity of the executive branch of the government, formed by law or by decree, staffed with government employees, and often placed within a ministry

Quasi-corporate RBO: A public RBO with some features of a corporate RBO (for example with respect to partly autonomous decision-making, and/or staff employment, and/or a direct revenue stream)

Regulation (at the basin level) can from case to case cover water allocation within the basin (including operation of weirs and reservoirs); permits to withdraw surface water or groundwater; sewage discharge permits; hydropower concessions; sand mining licenses; land use; permits for physical interventions such as bridges, embankments and dikes; and related dispute resolution

RBO: An organization that undertakes some basin-level tasks

Stakeholder: An organization or an individual that is influenced by a decision, or has an interest in a decision, or is in a position to influence the decision or its implementation

State corporation: A corporation owned by the state; same as state enterprise. (Sometimes, a distinction is made, whereby a state enterprise can be partly or wholly owned by the state)

Appendix B: Examples of corporate (and similar) RBOs

Listed by order of alphabet. Source: Isnugroho and Nielsen (July 2011)

Japan Water Agency (JWA)

www.water.go.jp

JWA was established by law in 2003 as an incorporated administrative agency under Ministry of Land, Infrastructure, Transport and Tourism. Hereby, JWA replaced the Water Resources Development Public Corporation (WARDEC) that was established in 1962. [12]

JWA undertakes water resources management in 7 river basins (Tone, Ara, Toyo, Kiso, Yodo, Yoshino and Chikugo). Tasks include domestic, industrial and agricultural water supplies, flood control, and aquatic environment. Infrastructural facilities include reservoirs and canals.

JWA constructs and operates dams, estuary barrages, facilities for lake and marsh development, and canals, supplying raw water to other entities, such as utilities, that distribute it to end users.

The performance of water and sanitation facilities is routinely monitored by benchmarking according to national practices. JWA's headquarters were ISO certified in 2004 as the first national incorporated administrative agency engaged in public works.

Japan practices full cost recovery for water supplies and sewage disposal (via tariffs), while urban drainage and stormwater disposal are considered public services.

JWA is active in international knowledge-sharing and technical assistance. It collaborates with ADB and NARBO (for example by hosting the headquarters of the NARBO secretariat), and provides expertise to other countries in many ways, including twinning arrangements with similar organizations (such as PJTI and PJTII in Indonesia).

K-Water

www.kwater.or.kr

K-water (or Korea Water Resources Corporation) was founded in 1967 under its original name of Korea Water Resources Development Corporation. [13]

The corporation covers 5 river basins: Han, Geum, Seomjin, Nakdong, and Yeongsan. It has built and is operating 15 multipurpose dams and the Nakdonggang estuary barrage. 5 new dams are under construction. It supplies some 10 billion m3 of water per year (including groundwater and desalinated seawater). It is comprehensively involved in flood management, as well as land reclamation and land development, particularly for industrial complexes. It operates 116 sewage treatment facilities, with 11 completed since 2001, and 19 more under construction.

K-water is building the World's largest (550 kWh/year) tidal power plant at Sihwa Lake, and is piloting renewable energy where feasible throughout its operation.

K-water exports its competence, with services ranging from pre-feasibility studies to a Build-Own-Operate-Transfer (BOOT) hydropower scheme (in Pakistan). Its reference list includes activities in Afghanistan, Bangladesh, Cambodia, People's Republic of China, India, Indonesia,

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12 Entire section based on the JWA website: www.water.go.jp

13 Entire section based on the K-water website: www.kwater.or.kr

Iraq, Laos, Mongolia, Nepal, Pakistan, Philippines, Sri Lanka, and Viet Nam, as well as Africa and South America.

K-water implemented ISO certification in 1996 as the first Korean public corporation. It holds A-level credit ratings (by Moody's and Standard & Poor's) and an AA level in national customer satisfaction for public corporations.

Laguna Lake Development Authority (LLDA)

www.llda.gov.ph

Laguna Lake, near Manila, is an extraordinary natural and socio-economic system. The lake is connected with Manila Bay by Pasig River, which reverses its flow in the dry season, letting some saline water into the lake. This is important for the fisheries yield. The broad banks of the lake are intensely cultivated in a part of the year and are inundated in the wet season.

LLDA undertakes sustainable, IWRM-based development of the Laguna de Bay Basin. [14]

LLDA was established by law in 1966 as a quasi-government agency with regulatory and proprietary functions. Its powers and functions were strengthened by decrees in 1975 and 1983 to include environmental protection and jurisdiction over the lake basin's surface water. In 1993, the administrative supervision of LLDA was transferred from the Office of the President to the Department of Environment and Natural Resources (DENR).

A broad master plan for resource-based development of the basin was prepared in 1995.

Today, the management is promoting a shift from a regulatory agency to a market- and client-driven development agency.

Its services include regulation, monitoring and development, with responsibilities for land development permits, sewage discharge permits, shoreland leases, fish pens and fish cages, barge and tugboat operation, environmental monitoring, and environmental impact assessment of new developments.

In 2010, the Civil Service Commission conducted a report card survey according to the 2007 Anti-Red Tape Act (ARTA) (promoting customer-friendly procedures and practices). LLDA was rated *'very good'* (and no. 2 of 8 participating agencies).

Murray-Darling Basin Authority (MDBA)

www.mdba.gov.au

MDBA was formed in December 2008, replacing the Murray-Darling Basin Commission (MDBC) which was formed in 1988. Hereby, the MDBC was taken over by the federal government is response to a lengthy and severe drought that had endangered the national water security.

Its origin is based on a delicate water-sharing dialogue that goes back for more than a century. The Murray-Darling Basin Agreement was signed in 1992 and promulgated in 1993, replacing an River Murray Waters Agreement from 1915 (and amended in 1987). The mandate of MDBA is laid down in the 2007 Water Act, amended in 2008.

The Murray-Darling basin (1,061,469 km2) covers parts of the Capital Territory, New South Wales, Queensland, South Australia, and Victoria. The basin is water-poor but is intensely cultivated and irrigated.

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[14] The remainder of this section is based on the LLDA website: www.llda.gov.ph, accessed in April 2011

One of the main tasks of MDBA is to prepare a basin plan for withdrawals of groundwater and surface water. MDBA is also involved in policy advice, monitoring, and knowledge-building. Much of the water-related development is managed at the state level or the federate (or central government, or Commonwealth government) level.

PJT1, Indonesia

www.jasatirta1.co.id

Perum Jasa Tirta 1 (PJT1) was formed in 1990 as one of two such organizations in Indonesia. As a public corporation, PJT1 is expected to implement in balance between healthy corporate principles and accountable public services norms, supported by stakeholders and shareholders.[15] [16]

PJT1 covers the Brantas and the Bengawan Solo Basins, which, between them, have an area of 27,900 km2 and a population of more than 31 million people. Responsibilities include

- water allocation and drought management, as agreed with the Basin Water Resources Management Committee (or *'Water Council'*[17]);
- flood control, flood forecasting and flood warning;
- watershed management;
- recommendations to the regulator on water licensing;
- water quality monitoring;
- provision of recommendations to the regulator for wastewater disposal;
- preventive maintenance and minor rehabilitation of infrastructure;
- sediment removal in reservoirs and channels;
- monitoring and control of sand mining; and
- land use planning (especially around reservoirs and river corridors); related recommendations to the regulator on licensing of river corridor utilization; and related monitoring.

Funding is provided in three ways:

- Beneficiaries pay for water services, rendered in form of a water service fee (except farmers);
- polluters are obliged to pay pollution fee and tax (not yet implemented but legal background is being drafted); and
- the government pays (principally through the BBWS)[18] for social services such as flood control, water quality control and water resources conservation

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15 Entire section quoted from Fahmi Hidayat (September 2009): The planning spiral of Brantas River Basin. CRBOM Small Publications Series no. 8, Center for River Basin Organizations and Management, Solo, Central Java

16 Indonesia has one more similar RBO, PJT2, covering the Citarum Basin and part of the Ciliwung-Cisadane Basin, West Java

17 The Water Council is an advisory body with 32 governmental and 32 non-governmental stakeholder representatives. PJTI is a member. Among other tasks, it prepares a recommendation on annual water allocation for the consideration and approval by the Minister of Public Works

18 BBWS-BS: Balai Besar Wilayah Sungai Bengawan Solo (River Basin Development Agency, under Ministry of Public Works)

PJT1 applies quality management according to ISO 9001 (since 1997 for the Brantas Basin and since 2009 for the Bengawan Solo Basin), as well as accreditation of its laboratories by international standards.

In a recent national benchmarking, PJT1 was ranked as the best performing RBO among the 7 participating organizations. The benchmarking applied indicators covering mission; stakeholder relations; learning and growth; internal business processes; and finance.

PJT2, Indonesia

www.jasatirta2.co.id

Apart from parts of the Ciliwung-Cisadane Basin, PJT2 covers the Citarum Basin, West Java, which supplies some 80 percent of the raw water for the capital Jakarta.

The Jatiluhur Multipurpose Project was implemented in 1956-67. Its first stage provided flood control, irrigation for 240,000 ha, 188 MW of hydropower generation capacity, and raw water supply for households and industries. [19]

After finishing the Ir. H. Djuanda dam and the related water infrastructure in 1967, the government established the state-owned company Jatiluhur to undertake operation and maintenance financed directly by the beneficiaries. In 1970, the company became Jatiluhur Authority Public Corporation, which then became PJT2 in 1999. Its mandate was adjusted in 2010.

PJT2 aims to develop the national economy by participating in the program of national development of water management, water source and electric power. The corporation undertakes or is involved in

- water services and water availability guarantee for the water resources business that prioritize the fulfilling the water needs for daily basic needs and irrigation for farmers;
- the utilization of surface water for hydropower generation and other business;
- watershed management; and
- control and development of water utilization in the Citarum River Basin.

In order to sustain and improve its operation, three aspects are considered:

1. Governance: PJT2 observes several regulations in delivering its tasks, such as PP No. 7/2010 on cooperation with other institutions.
2. Capacity building and technology application: In conducting its tasks, PJT2 hires capable human resources, applies appropriate technology, and applies the Management System of ISO 9001-2000, Work Safety & Health (SMK3) and Good Corporate Governance (GCG).
3. Mobilize financing: Sources of funds are obtained from the government; water tariffs; private/public investment; and foreign aid. Commercial tasks include electricity, industrial raw water, drinking water, and other services. Tariffs are set by the government. PJT2 sources nearly 100% of its funds from its own budget.

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[19] Section courtesy of Herman Idrus (Director of Water Management, PJT2), June 2011

Tennessee Valley Authority (TVA)

www.tva.org

TVA was formed under president Roosevelt in 1933 in connection with his 'New Deal' programme for recovery from the Great Depression. It is a federally owned corporation. Shaped around the Tennessee River, it covers most of Tennessee and parts of Alabama, Georgia, Kentucky, Mississippi, North Carolina and Virginia.

From the onset, TVA had a sharp focus on regional socio-economic development, rather than water-sharing and regulation. Its aim was pursued via hydropower production, together with flood control and navigation, as well as agricultural development. Its power production capacity was strongly expanded during the 2nd World War.

The Authority is financially self-supporting. It operates 29 hydroelectric dams and one pumped-storage plant, as well as 11 coal-fired and 8 combustion-turbine sites, 3 nuclear plants, 16 solar power sites, a 2 MW wind power site, and one 4 MW plant fuelled by methane from sewage treatment. There are 34 flood control dams, and a 1,045 km waterway on the Tennessee river.

TVA has an ombudsman [20] and its own police force.

Yellow River Conservancy Commission (YRCC)

www.yellowriver.gov.cn

The 5,500 km Yellow River got its name from its large amounts of suspended sediments. The river has been shaped accordingly; it has changed its course several times in recent history, and some of its sections are elevated above the surrounding land. The basin has a history of disastrous floods. Pollution is a major issue, and in dry periods, the river flow does not reach the sea.

The 752,000 km2 basin has an irrigated area of 7.3 million km2 and an installed hydropower capacity of 9,000 MW.

A basin management plan, the first such plan in People's Republic of China, was passed in 1955 by the second session of the first National People’s Congress.

The basin is managed by YRCC, an agency under Ministry of Water Resources. Its some 28,000 employees undertake water resources management; flood control and drought mitigation; soil conservation and morphological management; and environmental management; including related infrastructural planning, development, implementation and operation. It operates two separate research and development organizations: Institute of Hydraulic Survey, Programming and Designing; and Center for Hydroinformatics in River Basins (CHIRB), a member of the APWF network of regional water knowledge hubs.

In 2010, YRCC received the Lee Kuan Yew Water Prize. Mr. Tan Gee Paw, Chairman of the Nominating Committee, explained that the award *'celebrates the outstanding achievements of YRCC in integrated river basin management that is unrivalled in scale. In rejuvenating the Yellow River and managing floods, YRCC has brought about widespread and sustainable social, economic and environmental benefits to over one hundred million people'.*

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[20] Ombudsman: An independent official responsible for investigations of complaints

Center for River Basin Organizations and Management
www.crbom.org, info@crbom.org
PJT1, www.jasatirta1.co.id, mlg@jasatirta1.co.id