

Country/ Organizational Report

RED RIVER BASIN PLANNING MANAGEMENT ORGANIZATION¹

1. Organizational structure and roles of the Red River Organization

- **Organizational structure(Annex 1)**

Red river basin planning management organization (RRBO) is set up according to by decision No 39/2001/QĐ/MARD dated 9/4/2001, signed by Minister of MARD.

Organizational structure of RBPO following:

- Organization leader: including general director and vice general directors. General director is vice minister of MARD, standing vice general director is general director of water resources Department, MARD. The other vice general director is general director of water resources Department, Ministry of Resources and Environment.
- Standing Team: Members of standing team consist of general director and vice general directors and other members.
- Members: including leader of provincial people committees, leader of MARD' departments such as water resources department, dyke management department, institute of water resources planning, Director or vice director of provincial agriculture and rural development Departments, and the other department leaders of Ministries concerned.

- **Roles of RRBO including**

The RRBO is established and is the government organization belonging to MARD to manage basin-level water resources development planning. The RRBO is responsible for as following:

1. Assessment of alternatives of water resources planning projects and water resources basic investigation projects and then submit to MARD and the state authorized agencies.
2. Assessment and monitoring implementation of integrated water resources planning projects, including irrigation, drainage, flood control alternatives and water resources conservation in the Red river basin.
3. Coordination with related agencies of ministries, sectors, and localities in implementation of water resources planning projects approved by MARD or Government.

The views expressed in this paper are the views of the authors and do not necessarily reflect the views or policies of the Asian Development Bank (ADB), or its Board of Directors, or the governments they represent. ADB does not guarantee the accuracy of the data included in this paper and accepts no responsibility for any consequences of their use. Terminology used may not necessarily be consistent with ADB official terms.

¹ Bui Nam Sach, Institute of Water Resources Planning – MARD, 162A - Tran Quang Khai Str. Hanoi – Vietnam; Tel. No: (00-84) - 4- 8264883; Facsimile No: (00-84) - 4- 8252807

4. Coordination with related agencies to establish management regulation of data-base serving management, exploit, use and water resources conservancy in the Red river basin.
5. Propose to establish capacity building programs and awareness in management, protection, exploitation, and use of water resources for organizations and individuals in the Red River Basins.
6. Submit to Minister of MARD and related ministries about the water use and management in the Red river basin.

2. Challenges and proposed measures on IWRM in RRBO

2.1 Challenges

Policy and Legislation

- Policy and secondary legislation under the Law on Water Resources (LWR) is not complete. Important issues which should be addressed include such things as water allocation and rights, financial sustainability of hydraulic works, flood management, and others.
- Flood management is a critical need. It comes largely under the river basin umbrella, for which legislation, policies and institutional arrangements are partially in place. However, there are still major gaps in terms of adoption of a coordinated set of structural and non-structural measures, information and skills to implement and maintain these measures, and needed international arrangements for flood prone international rivers.
- The capacity to develop strong policy and secondary legislation under the LWR is limited. This will require better coordination between ministries, agencies and provinces as well as training in strategic approaches to integrated water resources management.
- Awareness of the LWR, secondary legislation and how these will be implemented is still at a low level. A clear program of information and awareness regarding the LWR and integrated water resources management is needed.

Institution Arrangement

- MARD has not yet clearly reflected its mandate for state management of water resources in a new organizational structure. Issues such as the need for separation of i) state management of water from ii) irrigation and hydraulic works management, and strengthening and coordination of water-related functions across departments should be addressed.
- The coordination between ministries and agencies is still weak. Some ministry mandates overlap, causing waste of resources and lost opportunities. The solution will involve both the development of appropriate coordination mechanisms and clear requirements from the highest levels of Government to ensure that coordination really happens.

- Although RRBO has been established and are being activated, their role is still somewhat unclear. The degree to which RRBO should have decision-making authority (eg. project or budget approval), the control of RRBO by MARD and representation of multiple ministries/sectors as well as provinces are matters which should be resolved, based on both international models and local experience. RRBO will need support to raise awareness of members, train staff, provide equipment, etc.
- Institutional strengthening and capacity building is needed for different staff levels on management, planning, and other issues. This is particularly true at the provincial level, where lack of technical support, training, resources and a clear definition of responsibilities (with respect to central ministries and agencies and water user associations) limits the effectiveness of provincial water management.
- The private sector is relatively weak and participation of water users in management, operation and maintenance of water infrastructure is still limited. Private sector participation could and should involve investment opportunities, provision of specialized services.
- The coordination of international aid and assistance for the water sector has not been done in an optimal manner. Aid management has tended to focus on allocation and channeling of funds, rather than deeper partnerships based on real sectoral priorities.

Information Management

- A large amount of water resources data and information is still scatted in different agencies and ministries. Access to this data and information is difficult, costly and time consuming. Data is not compiled and edited in an easy accessible format.
- The water resources monitoring network was established at a fairly broad scale; it does not cover all rivers and groundwater adequately. The number of monitoring stations is far behind the recommended standard and data quality is poor. Monitoring and evaluation of surface, groundwater and water quality need to be improved.
- Flood warning and preparedness does not have an adequate action plan.
- Information on the linkage between surface and groundwater needs to be improved.

Integrated Water Resources Planning

- There is no single, official water resources development and management strategy at the national level. As a result, there are not yet clear mechanisms to make coordinated sectoral development and management decisions across ministry (administrative) lines. Also, there are no integrated river basin development and management plans.
- Planning has not been carried out in a strategic manner or at a professional level. There is a lack of advanced tools and resources for planning, including software, well trained and experienced staff, guidelines, etc. Technical aspects and consultation and conflict resolution aspects of basin water resource planning need to be strengthened.

Financing

- Investment under the State budget has only reached 60-70 percent of the required level. A long-term financing strategy, including State funds, international assistance, private sector investment and user fees should be prepared.
- The ability of Government to directly finance water sector investment, particularly for medium and smaller works, or to decentralize responsibilities and transfer systems and/or to place them on a financially sustainable basis is poor. Government subsidy plus user fees are not adequate to meet operation and maintenance requirements.
 - Budget responsibilities between the central and local level need to be clarified. Lack of financial capacity at the local level means that some local investment can not be carried out.
 - Compensation rate for site clearance and its mechanism are difficult issues that result in delay of project construction schedule. Tendering problems and unrealistically low bid price creates low quality or delay of projects.

Resources Regulation and Conflict Resolution

- Further secondary legislation is required to put the necessary resource regulation activities into effect. Considerable work will be required to prepare and test the necessary details, define institutional roles, train staff, build awareness, etc.
- Inspection and enforcement and conflict resolution activities need to be strengthened and coordinated.

Training and Human Resources

- The level of awareness, skills and technology for integrated water resources management and new functions for its implementation is fairly low at both the national and provincial level. Clearer understanding and commitment regarding IWRM at senior levels in Government is also needed.
- One area requiring training and other technical assistance is integrated river basin planning and management. New techniques, methods and models are needed, as well as public consultation, negotiation and conflict resolution skills.
- Training and technical assistance should be provided to encourage the application of integrated water resources management to areas such as flood management and mitigation.
- Public administration reform needs to be carried forward to address both institutional issues and staff issues such as recruitment, salary and benefits, and improved management staff management.

- Professional training is based on traditional approaches. New advanced concepts and techniques should be added to the curriculum. Training at the local level (provincial, district and commune) is poor. Retraining and training of trainers also need to be improved.
- Training should address the need at both the university and post-graduate level and at the technical level.

Education, Awareness, Consultation

- Consultation and coordination between ministries and agencies and between the central and local level needs to be improved. MARD should take a strong role in building up this consultation and coordination.
- Awareness raising on water resources has been limited. Most awareness activities have been in project areas and under project funding. People's participatory activities should be build up as a public movement.

2.2 Proposed measures on IWRM of RRBO

The second Red River Basin Sector project is carried out by ADB, MARD and IWRP. The project aims to establish integrated water resource management and upgrade or repair priority water resources infrastructure. The project has been designed in two parts: part A, covering integrated water resource management and related institution building and part B, covering infrastructure improvements and rural development support activities.

- ***Capacity Building and training***

Effective Capacity Building constitutes a variety of elements, ranging from specific training, to transfer of technology and transfer of knowledge, study tours, lectures and presentations, workshops on a capita selecta of technical, administrative, financial and organizational subjects, to on the job training. By implementation of IWRM the capacity of the RRBO and Institute of Water Resources Planning is built. The activities may seem to be focusing on River Basin Planning, since the activities in the first phase of the project were greatly related to collecting information and people's perception on the major issues and options in the basin. However, this River Basin 'planning' is only the first step in the IWRM cycle, and later in the project the management aspects will receive more attention.

Consultants have attempted, in cooperation with MARD, IWRP and the RRBO, to assess the specific needs for Capacity Building for the RRBO as well as for the various stakeholders and address such in the plan for phase 2. However, the deadlock regarding place and mandate of the RRBO's office and its relation to other stakeholders has hampered efficient execution of these activities during phase 1 of the project.

- ***Stakeholder/public involvement in IWRM***

Consultants have attempted, in cooperation with MARD, IWRP and the RRBO, to have a very strong focus on stakeholder involvement and public participation. One of the tasks for instance is assessment of the needs for a public awareness campaign and design of such for the second phase.

3. Structural and non-structural countermeasures

- **Strengths**

- The Government has placed a high priority on water infrastructure construction for a very long time. As a result a wide range of infrastructure systems have been built throughout the Basin.
- Multi-purposes projects have been built with multi-sector and stakeholder involvement.
- Irrigation systems have been built throughout the Basin to meet the basic water demand. The irrigation system is being strengthened and modernized to increase supply capacity and system efficiency.
- Other sectors such as hydropower and urban and rural domestic and industrial water supply.

- **Weakness**

- The level of hydraulic works financial sustainability is relatively low. As a result there has been poor operation and maintenance of hydraulic works and their operational efficiency is therefore low.
- Irrigation and drainage systems need to be modernized and upgraded. Geographic coverage of water supply system for irrigation is still limited and has not reached the required level especially in mountainous areas. The dyke system is inadequate in some areas.
- Policy is needed on the sharing of capital costs for multipurpose reservoir development. For example, where hydropower is the main sector promoting the development, other sectors which benefit from downstream flow management might make some contribution to the development or operation of the reservoir.
- Climate change has caused both severe flooding and reduced low flow, resulting in greater need for water storage and regulation.
- The level of hydraulic works development, management is relatively low. Major investment needs exist in the area of water supply and sanitation. Institutional development and capacity building in these areas are critical needs.

4. Background, issues, challenges, future vision and concrete action

4.1 Background

The Red River is formed by the confluence of the Da, Thao and Lo Rivers at Viet Tri upstream of Ha Noi. The Chay and Gam Rivers are tributaries of the Lo River, all rising in China. The Day River is the first of several distributaries that form the Red River Delta. It branches downstream of Son Tay and flows south of Ha Noi. The Cau, Thuong and Luc Nam Rivers are tributaries of the Thai Binh River. They rise within Vietnam, where rainfall is lower, and discharge to the Gulf of Tonkin. The Duong and Luoc Rivers, distributaries of the Red River, discharge to the Thai Binh River.



Administratively the Red River Basin comprised 26 provinces now. The Red River Delta (RRD) Region consists of 11 provinces and covers 17% (15,000 km²) of the basin in Vietnam. The upper basin covers about 70% of the Northern Highlands (NH) Region including 8 complete provinces and parts of 7 more. Parts of Cao Bang, Bac Kan and Lang Son Provinces drain north into China through the Bang Giang, Ky Cung and other small rivers. Most of Quang Ninh Province drains direct to the Gulf of Tonkin. In the south parts of Lai Chau, Son La and Hoa Binh Provinces are in the Ma River Basin. The total population of the RRB was about 25 million in 2000 of which 10 million (40%) were poor compared with the national average of 37%. Furthermore poverty is essentially a rural affliction and, although the incidence of RRB poverty is higher in the highlands (55% vs 37%), there are 25% more poor people in the densely populated rural delta (5.5 vs 4.4 million).

Table 4.1: Population and Poverty in the Red River Basin

Area	Population (million)	Poverty Incidence (%)	Poor Population
Ha Noi & Hai Phong Cities	2.0	5	0.1
Rural Delta	15.0	37	5.5
Highlands	8.0	55	4.4
Red River Basin	25.0	40	10.0

The RRB has a monsoon climate with pronounced wet and dry seasons. More than half the delta is less than 2 m above mean sea level. It is protected from flooding and typhoon storm surge by 3,000 km of river dykes and 1,500 km of sea dykes forming about 30 main polders. Rice is the main crop and intensive production relies on a combination of gravity and pumping for both irrigation and drainage. While development potential is limited the scope to improve the

agricultural production performance of existing systems is thought to be significant. Provincial Irrigation and Drainage Management Companies (IMC's), District Irrigation Enterprises (DIEs) and Commune Agricultural Cooperatives (CACs) manage the polder irrigation and drainage systems except the inter-provincial Bac Hang Hai system where the IMC reports to MARD.

Electricity Vietnam (EVN) has two hydropower facilities in the RRB; Hoa Binh Reservoir on the Da River (live storage 5.65 BCM) and Thac Ba Reservoir on the Chay River (2.06 BCM). During the wet season these large reservoirs and the Day River Barrage are operated by MARD to control flooding. Nine main irrigation reservoirs (total 0.7 BCM) serve 60,000 ha. Existing storage capacity presently regulates only about six percent of mean annual flow and there is considerable potential for further storage development, especially on the Da and Lo-Gum Rivers. The GOV is now considering several dams, and has decided already upon construction of the Son La Multi-purpose Reservoir on the Da River upstream of the existing Hoa Binh Reservoir.

In various previous projects diagnostics studies have been made of the water resources issues in the basin (Red River Delta Masterplan study 1996, Water Resources Sector Review 1996, Red River Basin WRM study 2001, Day River Water Resources Development study 2002, etc). Nevertheless, no consensus exists about the real problems and the priority management options related to water resources in the basin. The Red River Delta study concluded that there is generally 'a favorable waterbalance' and major WRM issues are: (i) flooding, (ii) the performance of irrigation & drainage systems, and (iii) groundwater quality due to municipal and industrial pollution.

The Sector Review estimated the 85% reliable flow at Son Tay to be 1,367 m³/s versus a present peak demand of only 660 m³/s in January. The reported mean annual flow of 137 BCM represents nearly 5,500 m³/capita/annum. This compares favorably with international norms as countries are only considered water stressed when the renewable water supply drops below 1,700 m³/capita/annum and water scarce when it drops below 1,000 m³/capita/annum. The Sector Review did not, however, consider the considerable spatial and temporal variation in water availability.

The Thai Binh Sub-basin and its tributaries, including the Cau River, are relatively short of water reflecting smaller basins and lower rainfall. While local estimates predict demand for water will increase by as much as 100% over the next 40 years the Sector Review did not envisage any increase in view of limited potential for irrigation expansion. While water shortages have occurred in dry years, the Sector Review attributed the problem to limited irrigation system capacities and poor management performance rather than insufficient water at intakes. In the Orientation phase of the subject study, however, it has been concluded that apart from the Cau basin, also some other subbasins are under water stress during particularly the dry season.

Thus the performance of existing irrigation and drainage systems is likely to prove a priority issue. Improved agricultural production performance is likely to require a combination of system management and agricultural improvements as well as provision of infrastructure subprojects. While there is general consensus that flooding poses the greatest risk to development in the RRD a recent flood study found that Hanoi is currently protected against the 450-year flood. Thus structural dyke failure is considered the main risk rather than overtopping.

The six Cau River Provinces set up a committee to manage water quality reflecting local demand for municipal and industrial pollution control. The Sector Review was concerned by the risk of groundwater contamination, as the main source of domestic water supplies, but the

impacts of municipal and industrial pollution remain to be determined. Recent research indicates arsenic, occurring naturally in groundwater, poses a greater health risk. Hai Phong is reported to obtain municipal water from surface sources with associated risk of saline intrusion.

- The RRBO Regulation is approved by MARD, defines membership and functions of both the governing Board and the executive Office. TA-3892 project will build the RRBO's capacity to carry out its assigned IWRM functions. Under 2RRBSP the Board is expected to serve as the Project Steering Committee, for both Parts A and B, and the Office is to facilitate development and implementation of a participatory IWRM process, involving key stakeholders, to identify and address priority RRB water resource management needs and issues. Stakeholders in the RRBO will participate in all these activities. To the extent possible the capacity of provinces for IWRM will be strengthened.

4.2 Issues

There are three main physical reasons why existing schemes are not achieving their potential:

- Insufficient maintenance and rehabilitation of the infrastructure. Much of the infrastructure is twenty years old, has been inadequately serviced and maintained, and needs renovation. Pumps, electrical gear, and intake and sluice gates are in many instances in need of improvement. Many of the pumps are reported to have low efficiencies, although no data were available of any site measurements made of this factor. A number of key drainage pumping stations have unreliable power supply, particularly at times of need and during storms, when drainage pumping is required.
- Inadequate infrastructure and design constraints. Most of the existing schemes were designed with an intake capacity of 0.8 l/s/ha which, at the time was considered adequate to meet peak water requirements, a higher demand is now considered necessary up to 1.2l/s/ha. Drainage sluices and pumping stations have traditionally been designed with a capacity of 3.0l/s/ha but calculations now show that a higher drainage capacity (up to 6 l/s/ha) is required in many areas.
- System operation and management problems. In the Red river Delta, many of the systems are operated as combined irrigation and drainage networks, where management of water levels is critical to controlling flooding, minimising pumping requirements and the costs. Many of the operating companies indicated that their staff lack training in water management.

4.3 Challenges, future vision and concrete action

- ***Irrigation, drainage and flood control structure***

- The river basins should be planned to construct new hydraulic works.
- Invest in upgrading, improving existing hydraulic works.
- Dredging of existing irrigation and drainage canals, lining of canals and construction of new irrigation and drainage canals.
- Invest in equipment, facilities for operation and management of irrigation and schemes.
- Plant trees and develop more lakes, dams upstream.
- Solve completely essential points of dykes, compartments, sluices.
- To build emergency spillway, maintain flood control systems.
- To reinforce the existing dyke system (investment in the critical areas).
- To dredge the river channel and clear the flood way.

- **Water supply and sanitation Structure**

- Building many different types of water supply works for example commune drill well, tank for containing rainfall, pumping station or common filtered tank for all commune (build a tank, filter water and distribution system).
- Investment and planning in water quality and water storage. Need a master plan, especially in rural and poor area.
- Build new water supply systems and individual water supply structure for residential areas.
- Build, upgrade and complete water supply works.
- Investigate and planning surface water and underground water.

- **Non-structural countermeasures**

- Need to have policy and regulations for managing and exploiting water resources.
- Have information, education and communication activities to raise public awareness (not only for farmers, people but also staff in organizations, association, people who are in charge of collecting water fee).
- Raise the management of exploitation capacity of hydraulic works, economize water in irrigation strengthen organizations, train cadres.
- Forest and protect watershed (upstream forest).
- To efficiently operate the flood retarding and diversion basins.
- Strictly discipline on dikes law's violation.
- Mechanism on management and dyke protection.
- Management, exploiting and protection water supply works.
- To manage the waste water poured into rivers.
- To raise public awareness relating the building of sanitary facilities.
- Educate and enhance public awareness.

ORGANIZATION CHART OF THE RED RIVER BASIN ORGANIZATION (RRBO)



