



Technical Assistance Report

Project Number: 42080
July 2008

Socialist Republic of Viet Nam: Preparing the Strengthening Water Management and Irrigation Systems Rehabilitation Project (Financed by the Japan Special Fund)

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 25 June 2008)

Currency Unit	–	dong (D)
D1.00	=	\$0.0000602
\$1.00	=	D16,611

ABBREVIATIONS

ADB	–	Asian Development Bank
IDMC	–	irrigation and drainage management company
IEE	–	initial environmental examination
MARD	–	Ministry of Agriculture and Rural Development
PPTA	–	project preparatory technical assistance
WRU	–	Water Resources University

TECHNICAL ASSISTANCE CLASSIFICATION

Targeting Classification	–	General intervention
Sector	–	Agriculture and natural resources
Subsector	–	Irrigation and drainage
Themes	–	Sustainable economic growth, governance, capacity development
Subthemes	–	Developing rural areas, financial and economic governance, institutional development

NOTE

In this report, "\$" refers to US dollars.

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I. INTRODUCTION

1. The Government of Viet Nam (the Government) requested project preparatory technical assistance (PPTA) from the Asian Development Bank (ADB) for preparing the Strengthening Water Management and Irrigation Systems Rehabilitation Project.¹ The project is to help the Government increase the number of engineers with qualifications in agriculture-related water management, improve the governance and management of irrigation systems, increase agricultural production, and improve the productivity of project areas to increase the incomes of poor farmers.² The PPTA fact-finding mission was conducted during 31 March to 17 April 2008, and culminated with the Government's concurrence with the PPTA impact, outcome, outputs, implementation arrangements, cost and financing arrangements, and terms of reference. The design and monitoring framework is in Appendix 1.

II. ISSUES

2. In recent years Viet Nam has achieved remarkable economic growth. The Government's 5-year socioeconomic development plan for 2006–2010 aims to promote sustainable development, and increase quality and efficiency of growth. Planned outcomes related to the water sector include (i) increased agricultural production to meet needs for food security and exports; (ii) improved crop productivity, quality, and processing of high-value products; (iii) development of aquaculture; and (iv) reduced vulnerability to the impacts of floods and droughts. The Government is concerned with the sustainability of the country's water resources as reflected in the national water resources strategy,³ where the main objectives for the water sector in the next 15 years are defined as the protection, efficient exploitation, and sustainable development of water resources on the basis of integrated and unified water resources management.⁴

3. Several external development partners provide assistance for the development of the water sector in Viet Nam. In addition to ADB these include the World Bank; United Nations Children's Fund (UNICEF); and the governments of Australia (Australian Agency for International Development), Belgium, Denmark (Danish International Development Agency), France (Agence Française de Développement), Italy (Directorate General for Development Cooperation—Ministry of Foreign Affairs), Japan (Japan International Cooperation Agency and Japan Bank for International Cooperation), the Netherlands, and the United States (United States Agency for International Development). Most international assistance reflects a strong development focus with an emphasis on works and measures, with very little investment in areas of water management. However, ADB is currently facilitating the process from the side of external agencies in an ongoing joint development partner and Government initiative for a comprehensive water sector review,⁵ which aims to help the sector agencies concerned adopt

¹ The PPTA first appeared in the business opportunities section of ADB's website on 19 May 2008.

² The project is the merger of two former pipeline projects: (i) water resources management (sector), which appears in the Viet Nam country strategy and program (2007–2010); and (ii) rehabilitation of irrigation systems, which appears in the Viet Nam country operational business plan (2008–2010). The merger came about with delays in processing the former, and to achieve higher efficiency in project preparation and implementation, as well as to provide stronger rationale and greater chance of achieving success in strengthening water management.

³ ADB. 2000. Technical Assistance to the Socialist Republic of Viet Nam for *Capacity Building for Water Resources Management*. Manila (TA 3528-VIE, \$3.8 million) assisted the Government with the formulation of the national water resources strategy.

⁴ Ministry of Natural Resources and Environment. 2006. *National Water Resources Strategy—Towards the Year 2020*. Ha Noi.

⁵ ADB. 2006. *Technical Assistance to the Socialist Republic of Viet Nam for the Viet Nam Water Sector Review*. Manila (TA 4903-VIE, \$780,000).

integrated water resources management in line with objectives of its national water resources strategy. It is also intended to provide a common framework to guide development decisions in the water resources sector over the coming 10 years. The water sector review presents a dire water resources situation given ever-increasing demands due to the country's population and economic growth. These demands on available water resources have already placed "moderate stress" on 6 of the 16 major river basins in the country, with 4 of these deemed to be "highly stressed."⁶ Unless an integrated approach to efficient management of water resources is adopted, the situation will deteriorate in the future resulting in more reliance on groundwater to supply its needs. This would cause major environmental impacts that cannot be fully determined. An integrated approach is also needed for coastal and riparian zone land-use planning as climate change and sea level rise will increase the incidence and severity of water-related natural disasters.⁷ The results of the water sector review, which are due by August 2008, will also be used to inform the design of the project and mobilize resources for the water sector.

4. While the proportional contribution of the agriculture sector to the gross domestic product has declined, the sector remains an important source of livelihood and means of poverty reduction for a significant proportion of the population. Irrigated agriculture provides the bulk of Viet Nam's employment and is by far the largest user of water, exceeding 65,500 million cubic meters per year (more than 82% of the total estimated water use in Viet Nam). Paddy rice is the dominant crop, accounting for more than 80% of the total irrigated area. Water resources have been extensively developed to support the growth of agriculture and the country has about 100 large- and medium-scale hydraulic works systems. One of the oldest and largest is the Bac Hung Hai irrigation and drainage system located to the east of Ha Noi in the Red-Thai Binh River Basin, which was designed and constructed in 1959. The total physical area of the system is 192,045 hectares, of which 146,756 hectares (76.4% of total area) are used for agricultural purposes, mainly to grow paddy rice. The total population of the provinces and districts encompassed by the command area is about 2.7 million, of whom about 2.2 million are working in agriculture. Given its importance to the economy, social welfare, and food security, and its advanced state of disrepair, the rehabilitation of the Bac Hung Hai irrigation and drainage system is one of the Government's top investment priorities.

5. The strategic focus of the country strategy and program for Viet Nam (2007–2010)⁸ is to support business-led, pro-poor, and sustainable economic growth. It takes a results-based approach that is directly linked to supporting the targeted outcomes of the socioeconomic development plan. Weak public administration and poor governance of state-owned enterprises are key constraints to the mobilization and efficiency of public investments, which hinder the effective delivery of public services. Viet Nam has 110 irrigation and drainage management companies (IDMCs), employing more than 22,500. Three of these are state-owned enterprises under the direct control of the Ministry of Agriculture and Rural Development (MARD), including the Bac Hung Hai IDMC. Local participation through participatory irrigation management and water-user groups is vital to ensure service quality and the efficient use of water resources in irrigation schemes. Participatory irrigation management pilots have demonstrated significant

⁶ The international standard for "water exploitation stress" is that moderate stress begins with a value of 20% (if more than 20% of the water basin discharge is extracted), and high water stress occurs for values above 40%. The highly stressed river basins are the Ma, Huong, Dong Nai and southeast river cluster in Khanh Hoa, Ninh Binh, Binh Thuan, and Ba Ria-Vung Tau provinces. The Red-Thai Binh River Basin is moderately stressed.

⁷ Viet Nam ranks among the top five most impacted countries to climate change and fourth in the world behind the People's Republic of China, India, and Bangladesh in terms of the absolute number of people living in vulnerable, low elevation coastal zones. In the 10 years to 2006, natural disasters in Viet Nam caused nearly 5,000 deaths, and destroyed more than 6,000 fishing boats, nearly 300,000 houses, and 3.9 million hectares of paddy rice.

⁸ ADB. 2006. *Country Strategy and Program (2007–2010): Viet Nam*. Manila.

improvements in the effectiveness of water management. However, its application has been slow for reasons concerning governance at all levels and deficiencies in water users' awareness and abilities. A possible approach being considered for improved management of irrigation systems is the mapping systems and services for canal operation techniques (MASSCOTE),⁹ which is a methodology for the modernization of canal irrigation systems and improving performance of conjunctive water supplies for multiple stakeholders. With high economic growth in nonagriculture sectors, demands on available water resources and proposals for reallocations are increasing. To ensure a minimum of disruption to agricultural production, the quality of irrigation and drainage services and the efficiency of irrigation systems must be improved.

6. ADB has engaged development partners and the Government to provide technical and financial assistance for improved water management and irrigation, along with several relevant ongoing projects.¹⁰ One of the main lessons from these interventions is that strengthening capacity to develop the water resources sector is crucial for the success of future investments. One effective means of strengthening capacity is through the provision of qualified human resources for development and management of water resources, including for irrigation.

7. Water Resources University (WRU) with its main campus in Ha Noi is the only university that educates water engineers in Viet Nam. Operating for more than 50 years, it has trained more than 18,000 engineers in water-related fields, of which more than 80% continued to work in their chosen professions. However, the situation at WRU has stagnated with the training program, teaching methodology, and reference materials lacking needed innovations. The curriculum is outdated, and the subjects taught are not fully diversified, including a lack of courses related to water, sanitation, and public health. The current training methods still focus on theory with little practical skills development, and the existing physical facilities cannot meet the requirements for high-quality human resources training and development. With rapid economic growth in Viet Nam, the demand for water engineers is growing by 4% per annum. If WRU is to remain the sole source of supply for this increased demand it will need to more than double its enrollment. Currently, 9,500 students are attending WRU training programs, yet due to inadequate facilities at the main campus in Ha Noi, about half of these students attend in-service training in the provinces, where the quality of training cannot be assured. While WRU's strategic development plan¹¹ includes the training of 20,000 water engineers by 2020, it will not be able to achieve this target unless its physical facilities and capacity are improved.

⁹ Food and Agriculture Organization (FAO). 2007. *Modernizing Irrigation Management—The MASSCOTE Approach*. FAO Irrigation and Drainage Paper 63. Rome.

¹⁰ ADB. 1993. *Report and Recommendation of the President to the Board of Directors for the Proposed Loan and Technical Assistance Grant to the Socialist Republic of Viet Nam for the Irrigation and Flood Protection Rehabilitation Project*. Manila (Loan 1259-VIE, \$76.5 million); ADB. 1994. *Report and Recommendation of the President to the Board of Directors for the Proposed Loan and Technical Assistance Grant to the Socialist Republic of Viet Nam for the Red River Delta Water Resources Sector Project*. Manila (Loan 1344-VIE, \$60 million); ADB. 2001. *Report and Recommendation of the President to the Board of Directors for the Proposed Loan to the Socialist Republic of Viet Nam for the Second Red River Basin Sector Project*. Manila (Loan 1855-VIE, \$70 million); ADB. 2003. *Report and Recommendation of the President to the Board of Directors for the Proposed Loan to the Socialist Republic of Viet Nam for the Phuoc Hoa Water Resources Project*. Manila (Loan 2025-VIE, \$90 million); ADB. 2005. *Report and Recommendation of the President to the Board of Directors for the Proposed Loan to the Socialist Republic of Viet Nam for the Central Region Water Resources Project*. Manila (Loan 2223-VIE, \$74.3 million).

¹¹ Water Resources University. 2006. *Development Strategy of the Water Resources University (2006–2020)*. Ha Noi.

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

8. The PPTA impact and project outcome are strengthened quality of water-related services. This will contribute to the project impact—sustainable management of water resources. The PPTA outcome is the project design agreed by the Government and ADB. The initial poverty and social analysis for the project is in Appendix 2.

B. Methodology and Key Activities

9. The PPTA will provide the detailed design for three main components: (i) strengthening capacity of water-related service providers, (ii) improving management of irrigation and drainage systems, and (iii) constructing new infrastructure and upgrading existing irrigation systems infrastructure.

10. The component for strengthening capacity of water-related service providers will support upgrading of the professional training facilities for water resources specialists at WRU. The project will provide funding and technical assistance to support improved education for water sector professionals and technicians, stronger water sector research and development programs, and education facilities with equipment to enable an increase in the number of qualified engineers in water-related fields needed to meet the heightened demands of a rapidly growing economy.¹² This component will be designed in a participatory manner in collaboration with WRU staff and students, and other stakeholders to identify priority institutional and infrastructure requirements.

11. The component for improved management of irrigation and drainage systems would support the Bac Hung Hai irrigation and drainage system by providing funding to upgrade crucial components and technical assistance to modernize management of the system. This component will be designed in a participatory manner in collaboration with farmers, IDMCs, and other stakeholders to identify the priorities needed for improved delivery of irrigation and drainage services. Following the mapping systems and services for canal operation techniques (MASSCOTE) approach, a step-by-step analysis leading to a consolidated vision of the future of the Bac Hung Hai irrigation and drainage system and a plan for progressive modernization of its irrigation management and canal operations will be formulated.

12. The component for construction of new infrastructure and upgrading of existing irrigation systems infrastructure for the Bac Hung Hai irrigation and drainage system will be designed in a participatory manner with Bac Hung Hai IDMC, farmers, and other stakeholders to identify priority investments needed to rehabilitate the Bac Hung Hai irrigation system, as well as possible new infrastructure development. This will culminate with the design of an investment project that incorporates selection principles and strategies developed under the first two components.¹³

C. Cost and Financing

13. The total cost of the PPTA is estimated at \$1,250,000 equivalent, of which ADB will provide \$1,000,000. The PPTA will be financed on a grant basis by the Japan Special Fund,

¹² Project implementation capacity of executing agency staff may also be strengthened through attending WRU courses for degrees or capacity improvements.

¹³ Feasibility studies will be conducted in accordance with the common general guidelines on feasibility study preparation for official development assistance projects funded by the five banks (Decision No: 48/2008/QD-TTg issued on 3 April 2008 by the Prime Minister).

funded by the Government of Japan. The Government will finance the remaining \$250,000 equivalent through counterpart staff, office space, administrative services, and physical facilities. The Government has been informed that approval of the PPTA does not commit ADB to finance any ensuing project. The cost estimates and financing plan are in Appendix 3.

D. Implementation Arrangements

14. MARD, the Executing Agency for the PPTA, will establish a new project management unit headed by a project director with full delegated responsibility for decision making. The unit will comprise full-time qualified and experienced staff of WRU and Bac Hung Hai IDMC, along with specialized technical staff resources. The project management unit will (i) provide day-to-day guidance to the PPTA consultants; (ii) liaise with participating ministries and departments of MARD, WRU, and Bac Hung Hai IDMC; (iii) assist the PPTA consultants in carrying out their duties efficiently and effectively; and (iv) implement the project.

15. The PPTA is expected to commence in November 2008 and be completed by July 2009. No major items of equipment will be procured. Minor equipment will be procured in accordance with ADB's *Procurement Guidelines* (2007, as amended from time to time). The equipment will be handed over to MARD upon completion of the PPTA. A team of international (29 person-months) and national consultants (46 person-months) will implement the PPTA. Implementation will require specialists with expertise in water resources development; tertiary education; agricultural and resource economics; financial analysis and financial management assessment; civil and hydraulic structures engineering; and environmental, social resettlement, and participatory approaches. ADB will engage a firm of consultants in accordance with the *Guidelines on the Use of Consultants* (2007, as amended from time to time) using the quality- and cost-based selection method with a ratio of 90:10 (technical score: financial score) applied for the evaluation, which is to be based on full technical proposals. The outline terms of reference for the consultants is in Appendix 4.

16. The PPTA will organize stakeholder workshops to disseminate outputs; obtain feedback and views; refine project proposals; and ensure close liaison with key national, regional, and provincial stakeholders as appropriate. Tripartite review meetings involving the Government, the consultant team, and ADB will be organized at critical milestone events. The consultants will prepare (i) an inception report, including a detailed work plan, to be submitted within 1.5 months of PPTA commencement and to be discussed at the initial tripartite review meeting; (ii) a midterm report to present preliminary findings, to be submitted within 5.5 months of PPTA commencement and to be discussed during the interim tripartite review meeting; (iii) a draft final report, to be submitted within 7 months of PPTA commencement, to present the salient features of the project, including technical, financial, economic, legal, institutional, social, environmental, and other aspects following the ADB format for the report and recommendation of the President for loan processing; and (iv) a final report, addressing the Government's, ADB's, and other stakeholders' comments on the draft final report, within 1 month of presentation of the draft final report at a national workshop. At least 15 copies of each report will be provided to the Government. Key outputs of the PPTA will be translated into Vietnamese as required.

IV. THE PRESIDENT'S DECISION

17. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$1,000,000 on a grant basis to the Government of Viet Nam for preparing the Strengthening Water Management and Irrigation Systems Rehabilitation Project, and hereby reports this action to the Board.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p>Impact Quality of water-related services strengthened</p>	<p>Number of engineers with qualifications in agriculture-related water management increased</p> <p>Increase in number of IDMCs equitized</p> <p>Increased number of hectares in the project area irrigated or drained leading to increase in agricultural production and productivity</p>	<p>Government statistics and annual reports of IDMCs</p> <p>ADB project completion report</p> <p>ADB sector evaluation studies</p> <p>ADB country assistance and program evaluation</p>	<p>Assumptions Strong political commitment to</p> <ul style="list-style-type: none"> • integrating management of water resources • improving public administration and governance of IDMCs • supporting financial autonomy for IDMCs • sustainable operation and maintenance of public investments • effective interagency support and cooperation <p>Risks (external)</p> <ul style="list-style-type: none"> • Rapidly increasing prices change economic situation and production patterns • Adverse global climate changes
<p>Outcome Project design agreed to by the Government and ADB</p>	<p>Memorandum of understanding defining project scope and implementation arrangements agreed and signed by the Government and ADB during appraisal mission in July 2009</p>	<p>Memorandum of understanding</p>	<p>Assumptions</p> <ul style="list-style-type: none"> • Adequate counterpart support • Adequate and timely provision of data • Adequate sharing of knowledge and information • Adequate performance of consultants <p>Risks (internal)</p> <ul style="list-style-type: none"> • Government refuses to implement resolutions of policy dialogue.
<p>Outputs</p> <p>1. Project component designed for strengthening capacity of water-related service providers</p> <p>2. Project component designed for improved management of</p>	<p>Outputs, including feasibility studies and baseline survey report, prepared in conjunction with the PPTA consultants and submitted together with the draft final report by May 2009</p>	<p>ADB document registration</p> <p>Government document registration</p> <p>Common general guidelines on feasibility study preparation for official development assistance projects funded by the five banks as attached to</p>	<p>Assumptions</p> <ul style="list-style-type: none"> • Effective stakeholder participation and ownership developed • Social and environmental safeguard compliance • Policy dialogue leads to constructive resolution <p>Risks (internal)</p> <ul style="list-style-type: none"> • Restricted availability and access to information and government personnel

<p>irrigation and drainage systems</p> <p>3. Structural component designed for construction of new infrastructure and upgrading of existing irrigation systems infrastructure</p> <p>4. Detailed baseline survey</p>		<p>the Decision No: 48/2008/QD-TTg issued on 3 April 2008 by the Prime Minister</p>	<ul style="list-style-type: none"> • Urban and industrial developments encroach into the project area and render agriculture a lower development priority.
<p>Activities with Milestones</p> <p>1.1 Identify priority institutional and infrastructure requirements for strengthening the capacity of Water Resources University, and design project activities to address the needs by May 2009.</p> <p>1.2 Conduct policy dialogue on integrating management of water resources and services provision, and balancing project investments with a higher proportion applied to nonstructural purposes.</p> <p>2.1 Identify priorities needed for improved delivery of irrigation and drainage services, and design appropriate and practical project activities by May 2009.</p> <p>2.2. Conduct policy dialogue with the aim of providing greater independence and financial autonomy for irrigation and drainage management companies and implement resolutions by September 2009.</p> <p>3.1 Identify priority investments needed to rehabilitate the Bac Hung Hai irrigation system for effective and sustainable operations by May 2009.</p> <p>3.2 Conduct policy dialogue with the aim of ensuring sustainable operation and maintenance of these systems and implement resolutions by September 2009.</p> <p>4.1 For all components, prepare detailed implementation arrangements, including cost estimates and financing plan, specific fund flow and disbursement mechanism, and procurement schedule by July 2009.</p> <p>4.2 Prepare economic analysis for the project and financial management capacity and governance analysis of the executing and implementing agencies, with particular emphasis on financial management capacity based on the proposed mechanism by July 2009.</p> <p>4.3 Complete baseline survey by July 2009.</p>		<p>Inputs</p> <p>ADB Financing: \$1,000,000</p> <ul style="list-style-type: none"> • Consulting Services: \$812,000 • Equipment: \$15,000 • Administration and Support Costs: \$15,000 • Training, seminars and conferences: \$15,000 • Surveys: \$20,000 • Contingencies: \$123,000 <p>Government Financing: \$250,000</p>	

ADB = Asian Development Bank, IDMC = irrigation and drainage management company, PPTA = project preparatory technical assistance.

INITIAL POVERTY AND SOCIAL ANALYSIS

Country/Project Title:	Viet Nam: Strengthening Water Management and Irrigation Systems Rehabilitation Project		
Lending/Financing Modality:	Project	Department/Division:	Southeast Asia Department Agriculture, Environment, and Natural Resources Division

I. POVERTY ISSUES

A. Linkages to the National Poverty Reduction Strategy and Country Partnership Strategy

1. Based on the country poverty assessment, the country partnership strategy, and the sector analysis describe how the project would directly or indirectly contribute to poverty reduction and how it is linked to the poverty reduction strategy of the partner country.

In recent years Viet Nam has achieved remarkable economic growth. While the proportional contribution of the agriculture sector to the gross domestic product has declined, the sector remains an important source of livelihood and means of poverty reduction for a significant proportion of the population. With continued economic growth in other sectors, demands for water and proposals for reallocations will increase. Thus improvements of the quality of irrigation and drainage services, and efficiency of irrigation systems, are urgently needed to enable a minimum of disruption to agricultural production.

The Government's 5-year socioeconomic development plan for 2006–2010 aims to promote sustainable development and increased quality and efficiency of growth. Planned outcomes related to the water sector include increased agriculture sector production to meet needs for food security and exports; improved crop productivity, quality, and processing of high-value products; development of aquaculture; and investment in water resources infrastructure (including irrigation) to support growth and to reduce the impact of floods and droughts.

The Asian Development Bank (ADB) country strategy and program for Viet Nam (2007–2010) takes a results-based approach that is directly linked to supporting the targeted outcomes of the socioeconomic development plan. Weak public administration and poor governance of state-owned enterprises are key constraints to mobilizing and increasing the efficiency of public investments, which hinder the effective delivery of public services. ADB's strategic focus for supporting business-led, pro-poor, and sustainable economic growth includes interventions designed to address these constraints. The specific targets for the ensuing project to be designed under the project preparatory technical assistance (PPTA) are to increase the number of engineers with qualifications in agriculture-related water management, improve the governance and management of irrigation systems, increase agricultural production, and improve productivity of project areas to increase the incomes of farmer beneficiaries.

B. Targeting Classification

1. Select the targeting classification of the project:

General Intervention Individual or Household (TI-H); Geographic (TI-G); Non-Income MDGs (TI-M1, M2, etc.)

2. Explain the basis for the targeting classification:

The classification is based on the main outputs of the proposed project: (i) strengthened capacity for water-related services delivery in the country through construction of a new campus and curriculum development for Water Resources University (WRU); (ii) improved management of irrigation and drainage management companies; and (iii) upgraded Bac Hung Hai irrigation and drainage system to improve the livelihoods and increase incomes for 2.7 million people. Interventions will be applied to address issues relating to participation, gender, and empowerment under the project.

C. Poverty Analysis

1. If the project is classified as TI-H, or if it is policy-based, what type of poverty impact analysis is needed? N/A

2. What resources are allocated in the PPTA/due diligence?

International social specialist: 3 person-months; national social specialist: 4 person-months; national on-farm water management specialist: 3 person-months; and national gender specialist: 2 person-months.

3. If GI, is there any opportunity for pro-poor design (e.g., social inclusion subcomponents, cross subsidy, pro-poor governance, and pro-poor growth)?

The project does have scope for a pro-poor design. Participation of the poor, women, and disadvantaged groups through participatory irrigation management and extension services are proposed as measures to ensure social inclusion by stakeholders.

II. SOCIAL DEVELOPMENT ISSUES**A. Initial Social Analysis**

Based on existing information:

1. Who are the potential primary beneficiaries of the project? How do the poor and the socially excluded benefit from the project?

The project is expected to have 2.7 million primary beneficiaries, of whom 2.2 million are farmers in the four provinces comprising the command area of the Bac Hung Hai irrigation and drainage system. These farmers often suffer the effects of drought and water logging. The new WRU campus will provide better conditions for students and teachers for study and research. An increase in the number of qualified graduates will contribute to the improvement of irrigation services and water management in general. The new campus will provide improved accommodation and sanitation, which will benefit poor students, especially females.

2. What are the potential needs of beneficiaries in relation to the proposed project?

The need for improved irrigation and drainage infrastructure, water management, and environment protection is growing. Rapid economic growth in Viet Nam has spurred a greatly increased demand for water engineers. Too few water engineers work in the districts and skilled water technicians are needed in the communes. With the improved facilities of the proposed new campus, more students can be enrolled, and ultimately more qualified engineers will be available to meet the demand. With new subject areas relating to public health and sanitation, the needs of beneficiaries, particularly women and children, will be addressed.

3. What are the potential constraints in accessing the proposed benefits and services, and how will the project address them?

Potential constraints for poor farmers who have small plots of land, and those who are located at the end of the canal may not have a voice in water allocation. To avoid this, the project is to promote participatory water management with representatives of different groups of beneficiaries and civil society organizations. Poor farmers will have access to extension services through district extension centers.

B. Consultation and Participation

1. Indicate the potential initial stakeholders.

The Department of Water Resources of the Ministry of Agriculture and Rural Development, Central Project Office, WRU, irrigation and drainage management companies, local authorities, nongovernment and civil society organizations (women's unions, youth unions, farmer associations).

2. What type of consultation and participation (C&P) is required during the PPTA or project processing (e.g., workshops, community mobilization, involvement of nongovernment organizations and community-based organizations, etc.)?

Workshop consultation will be organized during the PPTA and project processing.

3. What level of participation is envisaged for project design?

Information sharing Consultation Collaborative decision making

Empowerment

4. Will a C&P plan be prepared? Yes No Please explain.

During fact-finding for the PPTA, ADB started stakeholder consultations with intended project beneficiaries including WRU and Bac Hung Hai irrigation and drainage management company. Further intensive consultations are planned during project preparation.

C. Gender and Development

1. What are the key gender issues in the sector/subsector that are likely to be relevant to this project/program?

The project has potential gender issues that will be addressed. The majority of agricultural workers are women; they are impacted most by drought as their workload increases with the need to manually water crops. Women are also the victims of waterborne diseases due to unsafe working conditions and direct contact with polluted water. Female students enrolled at WRU are underrepresented (around 30% of total student numbers). The existing teaching methods, programs, and curriculum are not attractive to female students. With the new campus, and improved facilities and curriculum to be provided, more females are expected to be admitted to the university.

2. Does the proposed project/program have the potential to promote gender equality and/or women's empowerment by improving women's access to and use of opportunities, services, resources, assets, and participation in decision making? Yes No Please explain.

A gender action plan will be prepared during the PPTA.

3. Could the proposed project have an adverse impact on women and/or girls or to widen gender inequality? Yes No Please explain.

The project will have no adverse impacts on women or widen gender inequality due to the protective measures and actions in the gender action plan.

III. SOCIAL SAFEGUARD ISSUES AND OTHER SOCIAL RISKS			
Issue	Nature of Social Issue	Significant/Limited/ No Impact/Not Known	Plan or Other Action Required
Involuntary Resettlement	Houses will be replaced and productive land lost	Significant	<input checked="" type="checkbox"/> Full Plan <input type="checkbox"/> Short Plan <input type="checkbox"/> Resettlement Framework <input type="checkbox"/> No Action <input type="checkbox"/> Uncertain
Indigenous Peoples	No ethnic minorities reside in the project area.	Not significant	<input type="checkbox"/> Plan <input type="checkbox"/> Other Action <input type="checkbox"/> Indigenous Peoples Framework <input checked="" type="checkbox"/> No Action <input type="checkbox"/> Uncertain
Labor <input type="checkbox"/> Employment Opportunities <input type="checkbox"/> Labor Retrenchment <input type="checkbox"/> Core Labor Standards	No major labor-related issues are identified.	Not significant	<input type="checkbox"/> Plan <input type="checkbox"/> Other Action <input checked="" type="checkbox"/> No Action <input type="checkbox"/> Uncertain
Affordability	No affordability issues are attached to the project.	Not significant	<input type="checkbox"/> Action <input checked="" type="checkbox"/> No Action <input type="checkbox"/> Uncertain

Other Risks and/or Vulnerabilities <input checked="" type="checkbox"/> HIV/AIDS <input type="checkbox"/> Human Trafficking <input type="checkbox"/> Others (conflict, political instability, etc.), please specify	Workers coming from different areas may interrupt life in rural areas.	Minor significance—risks to be mitigated through awareness-raising requirements specified in construction contracts.	<input type="checkbox"/> Plan <input checked="" type="checkbox"/> Other Action <input type="checkbox"/> No Action <input type="checkbox"/> Uncertain
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IV. PPTA/DUE DILIGENCE RESOURCE REQUIREMENT
1. Do the terms of reference for the PPTA (or other due diligence) include poverty, social, and gender analysis and the relevant specialist/s? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, please explain why.
2. Are resources (consultants, survey budget, and workshop) allocated for conducting poverty, social and/or gender analysis, and C&P during the PPTA/due diligence? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, please explain why.

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Total Cost
A. Asian Development Bank Financing^a	
1. Consultants	
a. Remuneration and Per Diem	
i. International Consultants	609.0
ii. National Consultants	138.0
b. International and Local Travel	50.0
c. Reports and Communications	15.0
2. Equipment	15.0
3. Miscellaneous Administration and Support Costs	15.0
4. Training, Seminars, and Conferences	15.0
5. Surveys	20.0
6. Contingencies	123.0
Subtotal (A)	1,000.0
B. Government Financing	
1. Office Accommodation and Transport	60.0
2. Remuneration and Per Diem of Counterpart Staff	60.0
3. Others	130.0
Subtotal (B)	250.0
Total	1,250.0

^a Financed by the Japan Special Fund, funded by the Government of Japan.
Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

1. The Asian Development Bank (ADB) will engage a firm of consultants in accordance with the *Guidelines on the Use of Consultants* (2007, as amended from time to time) using the quality- and cost-based selection method with a ratio of 90:10 (technical score: financial score) applied for the evaluation, which is to be based on full technical proposals.

A. International Consultants

1. Team Leader and Water Resources Development Specialist (7 person-months)

2. The team leader and water resources development specialist will be an experienced international expert with qualifications and specialization in project management, with sound knowledge and significant experience in integrated and participatory water resources development in developing countries. He or she will have sound knowledge and practical experience in project planning for infrastructure and nonstructural development. The team leader will have experience leading a multicultural team; tasks will include

- (i) draw and use lessons from experience derived from similar projects in Viet Nam and the Asia and Pacific region through ADB and other development partner engagement, including the World Bank;
- (ii) coordinate the inputs of all the international and national consultants, conduct quality audit of consultants' outputs, and provide timely feedback;
- (iii) manage the entire PPTA team, and integrate all PPTA outputs into an ADB investment project;
- (iv) oversee preparation of the feasibility studies of investments for approval by the Government, in keeping with national standards, and acceptable to the Ministry of Agriculture and Rural Development (MARD) and ADB;¹⁴
- (v) keep the project implementation unit fully informed on a regular basis; wherever possible, engage government counterpart staff to ensure knowledge transfer; and
- (vi) ensure timely delivery of PPTA outputs, as defined in ADB's PPTA report, and of other outputs, in accordance with contract requirements.

3. As water resources development specialist, the consultant will

- (i) assess operating status of the Bac Hung Hai system and identify the priority works and activities to be financed under the project;
- (ii) prepare, with the agricultural and resource economist, preliminary estimates of investment costs and benefits to meet economic criteria;
- (iii) review the water balance; and
- (iv) review the workings of current institutional relationships within the Bac Hung Hai irrigation system, and recommend ways to improve effectiveness.

4. The team leader and project management specialist will have overall responsibility for coordinating and conducting participatory analyses of problems, solutions, and alternatives with

¹⁴ See common general guidelines on feasibility study preparation for official development assistance projects funded by the five banks as attached to the Decision No: 48/2008/QĐ-TTg issued on 3 April 2008 by the Prime Minister.

a wide range of representative stakeholders to strengthen the project rationale. He or she will be responsible for formulation of the project design and monitoring framework in a participatory manner with representative stakeholders, and completion of the baseline survey report.

2. Water Sector Tertiary Education Specialist (2.5 person-months)

5. The education specialist will be an experienced international expert with qualifications and specialization in water resources management and higher education, with significant experience in developing countries. He or she should have sound knowledge and practical experience in integrated water resources management and professional education in the water sector. Responsibilities include

- (i) review the development strategy of Water Resources University (WRU) with an emphasis on its vision; mission; strategies; modus operandi; and short-, medium-, and long-term operating targets;
- (ii) conduct a detailed diagnostic review of the existing teaching curricula, capacity of academic and nonacademic staff, and financial and physical resources; and
- (iii) assess adequacy and appropriateness of the strategy's implementation plan and recommend changes (if any) together with a comprehensive schedule of required resources to operationalize the development strategy.

3. Civil and Facilities Development Specialist (4 person-months)

6. The specialist will be an experienced international expert with specialization in detailed design of multistory residential and university buildings, assessment of existing infrastructure, and planning of structural rehabilitation, ideally of university complexes. Responsibilities include

- (i) update plans including primary designs for building the new campus in Ha Tay province;
- (ii) identify upgrading requirements including hardware, software, and capacity strengthening;
- (iii) appraise feasibility studies and safeguard planning for the new campus in Ha Tay province; and
- (iv) prepare procurement plans for equipment and services.

4. Agricultural and Resource Economist (5 person-months)

7. The economist will be a qualified and experienced international expert, and will

- (i) contribute to the analyses of financial and economic issues of the sector;
- (ii) prepare detailed project cost estimates, financing, and procurement plan using COSTAB software;
- (iii) develop with- and without-project economic and financial analyses to support development of the investment plan, and prepare a financial and economic analysis of the investment project as a whole;
- (iv) prepare a detailed sensitivity analysis by describing major investment project risks and potential impacts on project feasibility, and propose mitigation measures and safeguards to be incorporated in the investment project design;
- (v) undertake a financial management assessment of WRU and Bac Hung Hai irrigation and drainage management company (IDMC) practices according to

- ADB guidelines, and make recommendations to strengthen financial management;
- (vi) based on financial management assessments of the executing and implementing agencies, design a fund-flow mechanism and appropriate ADB loan disbursement procedures to be used for the ensuing project;
 - (vii) assess farmer and water-users associations' ability to pay for capital cost recovery, and operation and maintenance costs for on-farm works;
 - (viii) conduct a poverty impact assessment for various farm sizes and farming practices, based on distribution analyses and poverty analysis;
 - (ix) assist the team leader and institutional and social development specialist to complete the baseline survey; and
 - (x) prepare all reports related to the investment project, in association with the team leader.

5. Hydraulic Structures Engineer (5 person-months)

8. The engineer will work with the team leader to help develop the investment project to be prepared by the PPTA. In association with the team leader and the agricultural and resource economist, the consultant will identify the prioritized works and activities to be included in the investment project. For the Bac Hung Hai system, the engineer will

- (i) estimate water requirements for irrigation and leaching, and associated delivery schedules;
- (ii) design and estimate the associated investment needs for the supply system to the water-users associations' supply points;
- (iii) design and estimate the investment needs for on-farm water distribution and drainage control systems;
- (iv) develop measurement and data acquisition systems to improve on-farm water management operations, and potential supervisory control and data acquisition interventions;
- (v) review the Bac Hung Hai system pumping facilities to estimate the likely loss of function over time in the absence of the investment project interventions;
- (vi) prepare guidelines for the development of an operation and maintenance manual for the rehabilitated structures and pumping stations; and
- (vii) ensure that the feasibility study for improvement of the Bac Hung Hai system is completed according to national standards.

6. Environmental Specialist (2.5 person-months)

9. The environmental specialist will, in cooperation with the Ministry of Natural Resources and Environment, verify that subprojects conform to the environmental regulations, guidelines, and standards related to irrigation development and natural resources management of Viet Nam and ADB. For each of the subprojects, the specialist will

- (i) conduct environmental screening and confirm the project's "B" categorization;
- (ii) prepare initial environmental examinations (IEEs) for each subproject and a summary IEE;
- (iii) conduct public consultation events for IEEs in a manner consistent with ADB's *Environment Policy (2002)*;
- (iv) assess training requirements for provincial and district staff for integrated pest management, watershed protection, and nutrient management;

- (v) identify potential environmental enhancement measures;
- (vi) prepare an environmental assessment and review framework as guidelines for environmental assessments to be conducted during project implementation; and
- (vii) provide guidance on the appropriate institutional arrangements for environmental monitoring.

7. Institutional and Social Development Specialist (3 person-months)

10. The specialist, a qualified and experienced international expert, will

- (i) assess and compare current Government resettlement legislation, policies, and frameworks with those of ADB; identify gaps, differences, or conflicting areas; and recommend modifications to content and/or mechanisms to promote compatibility;
- (ii) assess all potential resettlement impacts of the investment project, within the purview of ADB's resettlement policy, and confirm the ADB categorization of the proposed project;
- (iii) prepare a resettlement framework that is consistent with ADB guidelines for the investment project;
- (iv) produce resettlement plans needed for upgrading and expanding WRU and improving the Bac Hung Hai system, and ensure their timely disclosure to those affected;
- (v) prepare a gender action plan to involve women in project design, implementation, and monitoring;
- (vi) assess core labor standards in the context of employment creation from the construction activities of the project;
- (vii) assist the team leader and agricultural and water resources economist to complete the baseline survey; and
- (viii) assess the capacity at MARD, WRU, Bac Hung Hai IDMC, and other relevant agencies; and prepare a capacity development program for resettlement to be implemented under the project.

8. National Consultants

11. A team of national consultants will be engaged through a firm or nongovernment organization to undertake assignments under the PPTA work plan in close collaboration with staff of MARD, WRU, and Bac Hung Hai IDMC, and under the supervision of the team leader. The national consultants will comprise a civil engineer (4 person-months), environment specialist (4 person-months), social specialist (4 person-months), water resources development specialist (7 person-months), agricultural economist and financial specialist (7 person-months), supervisory control and data acquisition specialist (2 person-months), hydraulic structures engineer (6 person-months), water-users association and on-farm water management specialist (3 person-months), agronomist and agriculturalist (7 person-months), and gender specialist (2 person-months).