



# Report and Recommendation of the President to the Board of Directors

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Project Number: 29296  
March 2011

## Proposed Supplementary Loan Socialist Republic of Viet Nam: Phuoc Hoa Water Resources Project

## CURRENCY EQUIVALENTS

(as of 28 January 2011)

Currency Unit	–	dong (D)
D1.00	=	\$0.0000513
\$1.00	=	D19,498

## ABBREVIATIONS

ADB	–	Asian Development Bank
AFD	–	Agence Française de Développement
DHIS	–	Duc Hoa irrigation system
DMI	–	domestic, municipal, and industrial
DTIS	–	Dau Tieng irrigation system
EIRR	–	economic internal rate of return
ha	–	hectare
HCMC	–	Ho Chi Minh City
ICB	–	international competitive bidding
ICMB9	–	Hydraulic Project Investment and Construction Management Board No.9
IMC	–	irrigation management company
km	–	kilometer
m <sup>3</sup>	–	cubic meter
MARD	–	Ministry of Agriculture and Rural Development
NCB	–	national competitive bidding
OSDP	–	On-Farm and Social Development Program
PIM	–	participatory irrigation management
PPC	–	provincial people's committee
PPMB	–	provincial project management board
PSC	–	project steering committee
QCBS	–	quality- and cost-based selection
SSS	–	single-source selection
TBIS	–	Tan Bien irrigation system
VCD	–	Vam Co Dong (River)
VWRAP	–	Viet Nam Water Resources Assistance Project

## NOTE

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

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## PROJECT AT A GLANCE

<b>1. Project Name:</b> Phuoc Hoa Water Resources Project (Supplementary)				<b>2. Project Number:</b> 29296-023	
<b>3. Country:</b> Viet Nam		<b>4. Department/Division:</b> Southeast Asia Department/Viet Nam Resident Mission			
<b>5. Sector Classification:</b>					
		<b>Sectors</b>	<b>Primary</b>	<b>Subsectors</b>	
		Agriculture and natural resources	√	Water-based natural resources management	
<b>6. Thematic Classification:</b>					
		<b>Themes</b>	<b>Primary</b>	<b>Subthemes</b>	
		Economic growth		Widening access to markets and economic opportunities	
<b>6a. Climate Change Impact</b> No Climate Change Indicator available.			<b>6b. Gender Mainstreaming</b>		
			Effective gender mainstreaming (EGM)		√
			Gender equity theme (GEN)		
			No gender elements (NGE)		
			Some gender benefits (SGB)		
<b>7. Targeting Classification:</b>			<b>8. Location Impact:</b>		
<b>General Intervention</b>	<b>Targeted Intervention</b>			Rural	
	<b>Geographic dimensions of inclusive growth</b>	<b>Millennium development goals</b>	<b>Income poverty at household level</b>	High	
√					
<b>9. Project Risk Categorization:</b> Low					
<b>10. Safeguards Categorization:</b> <sup>a</sup>					
		Environment		A	
		Involuntary resettlement		A	
		Indigenous peoples		B	
<b>11. ADB Financing:</b>					
		<b>Sovereign/Nonsovereign</b>	<b>Modality</b>	<b>Source</b>	<b>Amount (\$ Million)</b>
		Sovereign	Project loan	Asian Development Fund	60.0
		Total			60.0
<b>12. Cofinancing:</b>					
		<b>Financier</b>	<b>Category</b>	<b>Amount (\$ Million)</b>	<b>Administration Type</b>
		Agence Francaise de Developpement	Official-Loan	25.0	Not administered by the Asian Development Bank
		Total		25.0	
<b>13. Counterpart Financing:</b>					
		<b>Source</b>	<b>Amount (\$ Million)</b>		
		Beneficiaries	3.7		
		Government	42.9		
		Total	46.6		
<b>14. Aid Effectiveness:</b>					
		Parallel project implementation unit	No		
		Program-based approach	No		

<sup>a</sup> As the original loan was category A environment and resettlement, and the same categorization automatically applies for the supplementary loan. However, as there are no physical changes involved in the project and all of the sensitive safeguard requirements were addressed when implementing the original loan, the Asian Development Bank's chief compliance officer has confirmed its low risk categorization.

## **I. THE PROPOSAL**

1. I submit for your approval the following report and recommendation on a proposed supplementary loan to the Socialist Republic of Viet Nam for the Phuoc Hoa Water Resources Project.

## **II. THE APPROVED PROJECT**

### **A. Project Rationale**

2. The project will construct the Phuoc Hoa barrage and transfer canal to divert water from the Be River to the existing Dau Tieng Reservoir on the Saigon River in the neighboring basin. From there it will be diverted through the existing Dau Tieng irrigation system for multiple uses.

3. The project was prepared in 2003 and an Asian Development Bank (ADB) loan was approved in the same year.<sup>1</sup> Project implementation was initially deficient. High inflation in Viet Nam caused cost overruns and a financing gap of \$131.6 million (Table 1). However, implementation progress improved markedly with the mobilization of project implementation consultants in May 2006 and the transfer of project management to the Hydraulic Project Investment and Construction Management Board No. 9 (ICMB9) in Ho Chi Minh City (HCMC) in November 2006.

### **B. Objectives and Scope**

4. The goal of the project is to contribute to sustainable growth in rural, urban, and industrial areas of HCMC and surrounding provinces in accordance with the regional master plan. The objective of the project is to provide additional water in the Saigon and Vam Co Dong river basins for developing irrigated agriculture and to supplement existing supplies for salinity control and domestic, municipal, and industrial (DMI) use in HCMC and the surrounding provinces. The updated design and monitoring framework is in Appendix 1.

5. The project has two parts. Part A recognizes that successful project implementation requires an integrated approach to develop institutional capacity to sustainably manage the system at all levels and includes (i) managing implementation and building capacity in government organizations to support the sustainable management of project facilities; (ii) the timely completion of on-farm development, support for organizing water users groups, and social support for groups with special needs; and (iii) the implementation of resettlement plans and an environmental management plan to mitigate adverse impacts. Part B will construct the Phuoc Hoa barrage and transfer canal. The original scope of the project included developing three new irrigation areas with a combined area of 48,130 hectares (ha): the Binh Long irrigation system in the provinces of Binh Phuoc and Binh Duong, Tan Bien irrigation system (TBIS) in Tay Ninh Province, and Duc Hoa irrigation system (DHIS) in Long An Province.

### **C. Cost Estimates and Financing Plan**

6. The project was initially estimated to cost \$164.6 million equivalent. It is financed by loans from ADB and Agence Française de Développement (AFD). The ADB loan is scheduled to close on 31 March 2011. AFD loans were approved on 20 November 2003 for €29.6 million

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<sup>1</sup> ADB. 2003. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Socialist Republic of Viet Nam for the Phuoc Hoa Water Resources Project*. Manila (Loan 2025-VIE, \$90 million, approved on 27 November).

(\$34 million equivalent), and are scheduled to close on 30 June 2011. The government was expected to finance \$35.6 million equivalent in local currency, and beneficiaries to contribute \$5.0 million in-kind. The actual financing of the initial phase of the project is shown in Table 2.

#### **D. Status of and Progress in Project Implementation**

7. The original arrangements were for the Central Project Office of the Ministry of Agriculture and Rural Development (MARD) in Ha Noi to oversee project implementation and be responsible for its management and administration. The Central Project Office was to establish a project management unit to guide and support existing provincial project management boards (PPMBs) in each of the project provinces of Binh Phuoc, Binh Duong, Tay Ninh, and Long An.

8. Project implementation was initially slow and effectively commenced only with the mobilization of project implementation consultants in May 2006, almost 2 years behind schedule. The transfer of project management responsibility to ICMB9 further enabled more efficient project implementation. In August 2007, MARD assigned to participating provinces responsibility for managing the design and construction of downstream canal systems, developing irrigation subproject areas, and implementing the On-Farm and Social Development Program (OSDP).

9. By November 2007, halfway through the loan period, implementation progress was still very low, at 11%. For the ADB loan, cumulative contract awards were only 12.1% of the loan amount and disbursements were 6.4%. For the AFD loans, there were still no contract awards or disbursements. An ADB review mission at that time identified significant capital cost overruns caused by rapidly escalating costs for labor, materials, and supplies, which was exacerbated by continuing delays in awarding construction contracts. Land acquisition and resettlement costs also substantially increased.

10. A joint ADB and AFD midterm review mission in May 2008 concluded that the project could not achieve its main objectives without supplementary financing. It was agreed that the remaining funds would be used to complete infrastructure for the basin transfer component and for related institutional development. With this focus, the project would be able achieve its purpose of only providing additional water for DMI and salinity control in the Saigon River basin. This was considered phase 1 of the project.

11. At the request of Binh Duong and Binh Phuoc provincial people's committees, the Binh Long irrigation scheme was cancelled, as the project areas were being converted for industrial and residential use or to grow rubber, which does not require irrigation. Phase 2 of the project would therefore comprise preparing and implementing irrigation development in Tay Ninh and Long An provinces. It was subsequently agreed, in November 2008, that resettlement and construction for the Tan Bien main canal would proceed with phase 1 funding.<sup>2</sup> The design of irrigation systems commenced in May 2009 for Tan Bien and May 2010 for Duc Hoa, with OSDP consultants facilitating farmer consultation during design, assisting resettlement preparation, and helping plan agricultural and social support.

12. All basin transfer activities and Tan Bien main canal construction are expected to be completed on schedule by the end of March 2011. Basic designs were completed in July 2010 to provide the layout and cost estimates for phase 2. After MARD approves basic designs,

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<sup>2</sup> The agreement was based on assurances from MARD on counterpart funding, associated capital investments being completed, resettlement preparation being carried out, and the anticipated economic viability of the TBIS.

detailed designs will be completed. The designs for the TBIS exclude substantial rubber plantations that will not need irrigation. Designs for the DHIS are flexible to accommodate possible changes in land use from traditional wetland rice to high-value agricultural crops.

13. OSDP consultants contracted to help form water users groups, design agricultural support programs, assist with resettlement planning and support to affected people, and monitor resettlement implementation initially performed poorly. Progress with OSDP implementation has improved as staff members have been replaced with those who are full-time and fully committed to the OSDP objectives. Project implementation consultants provide guidance and support capacity building.

14. A total of 2,183 households (including 305 ethnic minority households) with 9,500 people are affected by ongoing construction in phase 1 and covered by 11 resettlement plans approved by ADB. Four resettlement sites have been established to accommodate people (including ethnic minorities) wishing to relocate. The implementation of resettlement and compensation has complied acceptably with the resettlement framework and resettlement plans. External resettlement is being monitored, with PPMBs addressing any grievances.

15. An ADB safeguard review mission in March 2008 noted considerable progress in achieving environmental targets at a rate commensurate with the needs of the project. Some environmental safeguard measures that were delayed but have since been completed include ADB's approval of the revised environmental management plan and the approval of the environmental impact assessment by the Ministry of Natural Resources and Environment in March 2008. The buffer zone management program that aims to protect natural habitats in Lo Go Xa Mat National Park and production forest reserves in Tay Ninh Province will commence implementation in phase 2.

16. Project implementation consultants have provided effective management and technical support to ICMB9 and PPMBs. They have supported the project task force in irrigation system management and guided OSDP and environmental monitoring consultants. PPMBs have generally been active in shouldering their management responsibilities despite limited staff resources and capacity and, initially, a lack of experience with the social requirements of resettlement or the concept of participatory irrigation management (PIM).

### **III. THE PROPOSED SUPPLEMENTARY FINANCIAL ASSISTANCE**

#### **A. The Cost Overrun**

17. As described in paras 25 and 26 below, increased costs have caused a funding gap of \$131.6 million that will require supplementary funding from ADB, AFD and the government. Increased costs can be attributed to several factors, including higher inflation than was initially assumed in cost estimates, implementation delays compounding inflation, and some underestimation of unit rates and quantities for construction in the original feasibility study.<sup>3</sup>

#### **B. Impact on the Project**

18. The impact and outcome of the project have not changed.<sup>4</sup> The outputs have been updated to achieve the outcome and contribute to the impact. These outputs are (i)

<sup>3</sup> Analysis of Cost Overruns (accessible from the list of linked documents in Appendix 2).

<sup>4</sup> The original "goal" is now the "impact" and the original "objective" is now the "outcome".

strengthened capacity of water related organizations in the Phuoc Hoa area; (ii) on-farm irrigation systems developed and intensified agricultural practices adopted; (iii) project affected households fully resettled and compensated; (iv) environmental management plan successfully implemented; (v) basin transfer facilities operating, and irrigation and DMI water supplied; and (vi) irrigation facilities constructed and operating.

19. Major developments in water resource management and irrigation since 2000 are (i) the transfer of responsibility for state management of water resources to the Ministry of Natural Resources and Environment, which separates state management and service functions for water resources that were formerly MARD's responsibility; (ii) responsibility for managing on-farm irrigation systems being assigned to water users; (iii) and the promotion of PIM to strengthen the role of water users in designing and operating irrigation systems. These important developments, particularly those that decentralize irrigation system management, are accommodated in the original project design, which emphasizes creating institutional arrangements for farmer-based irrigation management and building capacity in irrigation management companies (IMCs) and farmer organizations to operate and maintain project irrigation systems. These activities will be further supported during phase 2.

20. Part A of the project substantially invested in sustainable systems management, which is already building capacity in organizations responsible for managing the basin transfer system that will supply water for irrigation, DMI uses, and salinity control, as well as in IMCs to operate project-funded irrigation systems. A task force created by MARD to guide the development of management objectives for the combined Dau Tieng–Phuoc Hoa water resource management system has approved an action plan for sustainable systems management, which is under implementation. The training and capacity building plan is being implemented with support from project implementation consultants, and the formulation of operational management plans and maintenance and asset management plans for IMCs is already well advanced.

21. A PIM approach to irrigation design and operation strengthens water users' ownership and commitment to take responsibility for on-farm irrigation management and the capacity of IMCs to efficiently and responsively manage irrigation systems. Support for PIM is incorporated into the OSDP and will be strengthened during phase 2 by a senior PIM adviser to the ICMB9, project steering committee (PSC), task force, and provincial governments. Ongoing capacity building for operating the basin transfer system and project-funded irrigation systems will address the management needs for water resource infrastructure established under the project.

## **C. Rationale**

22. The proposed supplementary financing complies with ADB's criteria, as (i) it will ensure the successful completion of an ADB-financed project with cost overruns; (ii) the project continues to be a priority in the government's development strategy; (iii) it will help achieve the original project objectives and benefits; (iv) the project has satisfactory implementation progress and appears likely to attain its development objectives; (v) the project is in an advanced stage of implementation, enabling the ADB-funded components to be completed within 3 years; and (vi) the cofinancier, AFD, will finance a substantial part of the cost overrun through an additional loan to be processed in parallel with ADB's supplementary financing. The government requested ADB and AFD to provide supplementary financing to complete the project and ensure achievement of its original objectives. The ADB supplementary loan was confirmed in consultations with government and is reflected in the country operations business plan.<sup>5</sup>

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<sup>5</sup> ADB. 2008. *Country Operations Business Plan: Viet Nam, 2009–2011*. Manila.



23. Without supplementary financing, the project would not achieve its original objectives to develop irrigation in the TBIS and the DHIS on 20,545 ha. Further, without constructing the Duc Hoa main canal, the project would not reliably supply water to existing irrigation systems in Tay Ninh Province (2,657 ha not related to the TBIS) or HCMC (900 ha in Cu Chi district), or the planned 4 cubic meters (m<sup>3</sup>)/second of DMI water to Long An Province. The Tan Bien main canal would remain underutilized, supplying only DMI water to Tay Ninh Province. Ongoing design work for the Duc Hoa main canal, TBIS, DHIS, and OSDP programs would be wasted.

#### D. Revised Cost Estimates

24. Along with actual expenditure, the total funding required to complete phase 1 is estimated at \$174.6 million. Phase 2 expenditure is estimated at \$154.9 million. Total project expenditure to complete both phases 1 and 2 is estimated at \$329.5 million.<sup>6</sup>

**Table 1: Consolidated Total Project Cost<sup>a</sup>**  
(\$ million)

Item	Original Cost Estimates	Actual and Estimated Phase 1 Costs <sup>b</sup>	Estimated Phase 2 Costs	Total Costs <sup>c</sup>
<b>A. Base Cost</b>				
Part A: Institutional development	33.1	70.8	52.4	123.1
Part B: Water resources infrastructure	101.3	125.2	76.4	201.6
<b>B. Contingencies<sup>d</sup></b>	27.2	(21.4)	24.1	2.7
<b>C. Interest During Implementation</b>	3.0	0.0	2.0	2.0
<b>Total</b>	164.6	174.6	154.9	329.5

<sup>a</sup> In mid-2010 prices.

<sup>b</sup> Actual expenditure up to supplementary loan appraisal in July 2010, and estimated costs to end of Phase 1.

<sup>c</sup> May not total exactly because of rounding.

<sup>d</sup> The devaluation of the dong during phase 1 meant savings in US dollar terms; thus the negative price contingency. Phase 2 price contingencies are computed at 0.7% in 2011, 0.0% in 2012, and 0.5% thereafter on foreign exchange costs and at 8.0% in 2011, and 6.0% thereafter on local currency costs. Phase 2 physical contingencies are computed at 10.0% for all expenditure categories.

Source: Asian Development Bank.

#### E. Revised Financing Plan

25. Not all the approved funding has been utilized; the balance of the original ADB loan, estimated to be \$23.3 million, is available for phase 2 construction. Supplementary financing estimated at \$131.6 million, including taxes and duties of \$8.4 million, is required to complete the project. The government has requested a loan of \$60.0 million from ADB Special Funds resources and additional cofinancing of €20 million (\$25.0 million equivalent) from AFD to supplement the loans from ADB and AFD that were agreed in 2003. The ADB supplementary loan will have a term of 32 years, including a grace period of 8 years, with an interest rate of 1% per annum during the grace period and 1.5% thereafter, and such other terms and conditions as are substantially in accordance with those set forth in the initial loan agreement, as amended for supplementary financing. Interest charges on the loan will be capitalized. The AFD loan will be provided as parallel collaborative cofinancing. Subject to negotiations, the AFD loan will be as concessionary as possible, with an interest rate subject to change every 6 months, a long term, and a long grace period. Interest charges on the AFD loan will not be capitalized. The government's supplementary financing is \$42.9 million, including local taxes and duties. Farmer beneficiaries will contribute \$3.7 million in services provided in kind.

<sup>6</sup> Detailed Cost Estimates (accessible from the list of linked documents in Appendix 2).

**Table 2: Financing Plan**  
(\$ million)

Source	Original Financing	Actual Financing	Supplementary Financing <sup>b</sup>	Total Financing	Share of Total (%) <sup>c</sup>
Asian Development Bank	90.0	95.0 <sup>a</sup>	60.0	155.0	47.0
Agence Française de Développement	34.0	36.0 <sup>a</sup>	25.0	61.0	18.5
Farmer beneficiaries	5.0	0.0	3.7	3.7	1.1
Government	35.6	66.9	42.9	109.8	33.3
<b>Total</b>	<b>164.6</b>	<b>197.9</b>	<b>131.6</b>	<b>329.5</b>	<b>100.0</b>

<sup>a</sup> Funds available to the project without supplementary financing. This takes into account the appreciation of the special drawing right and the euro against the US dollar.

<sup>b</sup> Includes taxes and duties of \$8.4 million.

<sup>c</sup> Percentages may not total 100% because of rounding.

Source: Asian Development Bank.

26. The ADB loan will finance management services including the costs of extended project implementation consultancy, as well as environmental management costs and a portion of resettlement costs. ADB will also finance civil works construction for the Duc Hoa main canal and most of the packages for the DHIS. AFD will administer its loan and finance the OSDP, civil works construction for the TBIS, and one of the packages for the DHIS.

## **F. Remedial Steps**

27. The main constraints on achieving project construction as scheduled under the supplementary loan are (i) the timely conclusion of land acquisition and resettlement, which, according to ADB requirements, must be completed before commencing construction on the relevant sections, and (ii) delays in processing construction design approvals and contracting construction. To accelerate land acquisition and resettlement, PPMBs will, under ICMB9 supervision, ensure that detailed measurement surveys are completed without delay following the finalization of detailed design for project canals and irrigation systems, and that resettlement plans are updated and promptly submitted to ADB for approval. PPMBs will prepare budget requests, and ICMB9 will facilitate their approval by MARD and the Ministry of Finance. The PSC will request provincial people's committees (PPCs) to ensure that (i) provincial and district resettlement committees are active, (ii) funds for resettlement are disbursed as rapidly as possible, and (iii) grievances are urgently addressed according to agreed procedures. To facilitate this, a representative from the PPC of HCMC will be added to the PSC.

28. Delays in preparing and implementing construction contracts for phase 2 could require further extending the loan closing date and additional cost overruns. This risk will be mitigated by ensuring the timely completion of ongoing construction design and the advance preparation of phase 2 construction bidding documents and contracting procedures. ICMB9 will create and maintain a database of all project contracts, including contract adjustments that can be included in project reports, to maintain up-to-date reconciliation of funds.

## **G. Implementation Arrangements**

29. Current implementation arrangements will be maintained for supplementary financing. MARD has delegated project management responsibility to ICMB9, including construction of Duc Hoa main canal. PPCs in Tay Ninh and Long An provinces and HCMC are the implementing agencies responsible for land acquisition and resettlement under phase 2. Provincial departments of agriculture and rural development and their PPMBs are responsible for implementing and managing the design and construction of primary, secondary, tertiary, and on-farm canal systems in the irrigation areas and for implementing the OSDP. Existing

arrangements for resettlement monitoring, environmental management, accounting, auditing, and reporting will be maintained under supplementary financing.

**Table 3: Implementation Arrangements**

Aspects	Arrangements		
Implementation period	April 2011–March 2014		
Estimated completion date	31 March 2014		
Management			
(i) Oversight body	Project steering committee Vice minister, MARD (chair)		
(ii) Executing agency	Ministry of Agriculture and Rural Development		
(iii) Key implementing agencies	PPCs and departments of agriculture and rural development of Binh Duong, Binh Phuoc, Tay Ninh and Long An provinces; and PPC of HCMC		
(iv) Implementation unit	ICMB9, with 30 staffers located in HCMC		
Procurement	ICB	1 contract	\$29.8 million
	NCB	14 contracts	\$58.4 million
Consulting services	SSS	594 person-months	\$3.4 million
	QCBS	110 person-months	\$4.3 million
Retroactive financing and advance contracting	For detailed designs and the completion of resettlement plans based on them, up to \$12 million, or 20% of the ADB loan, can be used for expenditures incurred before loan effectiveness but not more than 12 months before the signing of the loan agreement.		
Disbursement	The loan proceeds will be disbursed in accordance with ADB's <i>Loan Disbursement Handbook</i> (2007, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.		

ADB = Asian Development Bank, HCMC = Ho Chi Minh City, ICB = international competitive bidding, ICMB9 = Hydraulic Project Investment and Construction Management Board No. 9, MARD = Ministry of Agriculture and Rural Development, NCB = national competitive bidding, PPC = provincial people's committee, QCBS = quality- and cost-based selection, SSS = single-source selection.

Source: Asian Development Bank.

30. With ADB supplementary loan financing, the project will be extended by 3 years to 9.5 years, with completion expected by 31 March 2014. AFD cofinancing will continue for a further 2 years until 31 March 2016 to facilitate farmers' completion of on-farm irrigation systems and support the adoption of improved agricultural methods for irrigation systems.

31. Civil works and related services will be procured in accordance with ADB's Procurement Guidelines (2010, as amended from time to time). Procurement under the AFD loan will follow AFD guidelines. State-owned enterprises will be eligible to bid for contracts if they are legally and financially autonomous, are independent of MARD and provincial departments, and operate on the basis of commercial law and practice.

32. The civil works in phase 2 are small canals over a wide expanse in isolated areas. Technical designs are simple, local firms are experienced, and local labor is expected to be used extensively. As it is highly unlikely that overseas firms would be interested, it is proposed that the threshold for international competitive bidding be raised from \$2 million to \$5 million, so that civil works estimated at \$5 million or less will be procured by national competitive bidding (NCB) using ADB's standard bidding documents for small works. A grievance point person will be designated for each contract.

33. Goods will be procured through international competitive bidding if more than \$500,000, NCB if \$100,000–\$500,000, and shopping if less than \$100,000. The government's standard

bidding documents and procedures will be used for shopping and NCB if they comply closely with ADB's Procurement Guidelines.<sup>7</sup>

34. The firm Black and Veatch International provided project implementation and integrated management services during phase 1, and its performance was assessed as highly satisfactory. The executing agency requested that the same firm be contracted by single-source selection for phase 2, as the work is a natural continuation of services commenced under phase 1.

35. National consultants employed in phase 1 whose performance was assessed as satisfactory will be contracted again following single-source selection, as these services are also natural continuation. Otherwise, replacement consultants will be selected by consultant qualification selection. Other national consultants will be recruited to supervise the detailed design and construction of various components following quality- and cost-based selection with an 80:20 ratio of technical considerations to cost.

#### **IV. PROJECT BENEFITS, IMPACTS, AND RISKS**

##### **A. Project Benefits**

36. The project will increase water supply, make it more reliable, and produce benefits through irrigation and DMI water use. The primary irrigation benefit is increased agricultural production. Secondary benefits that cannot necessarily be quantified include (i) salinity abatement in the Saigon and Vam Co Dong rivers; (ii) improved drainage associated with irrigation infrastructure; and (iii) other multiple use and domestic use benefits such as the recreational use of reservoirs, improved water supply for cleaning and drinking in rural households and watering home gardens, and impacts on health and livelihood.

37. Economic analysis of phase 1, with estimated costs of \$174.6 million and benefits from 34 m<sup>3</sup>/second of DMI water, resulted in an economic internal rate of return (EIRR) of 10.8%. Economic analysis for both phases 1 and 2, with estimated costs of \$329.5 million and including benefits from 20,545 ha of irrigation in the TBIS and DHIS, plus benefits from supplying supplementary irrigation water to a further 3,557 ha directly from the Duc Hoa main canal, resulted in an EIRR of 12.3%. DMI benefits arise from water distributed by the project in the four provinces and HCMC. The economic return for phase 2—funded by supplementary loans to complete the TBIS and the DHIS, with all investment in phase 1 considered a sunk cost, and with agricultural benefits from the two irrigation areas, supplementary irrigation, and 7.5 m<sup>3</sup>/second of DMI water—generates an EIRR of 16.9%.<sup>8</sup>

38. The economic analysis shows that continuing the investment in phase 2 to complete the project is viable, with a higher economic return than the option of stopping the project with phase 1. However, the economic return is sensitive to the timing of benefit realization, with any delay in completing the infrastructure and the primary, secondary, tertiary, and on-farm irrigation network significantly damaging economic performance. Adequate maintenance of the completed infrastructure, ongoing support to farmers in irrigation management, and the functioning of PIM are also important to achieving the full potential of the investment.

<sup>7</sup> Revisions to the Project Administration Memorandum (accessible from the list of linked documents in Appendix 2).

<sup>8</sup> Economic and Financial Analysis (accessible from the list of linked documents in Appendix 2).

39. Farm budget analysis indicates a considerable increase in annual net farm income, ranging from \$1,150 to \$1,682 per ha, increasing farm income by 102% to 258%.<sup>9</sup> The financial gain from irrigation development will give farmer beneficiaries incentive to participate in the project. Further, long-term demand for water for rural and DMI use seems assured, as studies of water resources indicate future water shortages in the region as it develops economically, especially industrially in Long An Province, so economic benefits appear to be sustainable.

## **B. Social Impacts**

40. A total of 4,683 households (including 14 ethnic minority households) with 21,537 people will be affected by construction in phase 2. Of these, 1,151 households are expected to experience severe effects. A total of 22 ha of residential land and 692 ha of agricultural and other land will be permanently acquired. For the Duc Hoa main canal, 80 households will have to relocate their houses and shops. For the DHIS, 36 households and two shops will be relocated. For the TBIS, eight households will have to relocate. Preliminary inquiries reveal that most affected households will take cash compensation and manage their own relocation. On top of assistance and allowances provided to affected people, social support programs will be implemented to ensure that their incomes are restored and their livelihoods developed. Some affected people will seek government assistance to arrange a new settlement site.<sup>10</sup>

41. The government and ADB have agreed on a resettlement framework that sets out compensation and other entitlements for any land acquisition and resettlement.<sup>11</sup> It has been updated and complies with current government policy and ADB's Safeguard Policy Statement (2009) and will be applied under supplementary financing. The project remains category A for resettlement. Resettlement plans have been prepared for the TBIS,<sup>12</sup> Duc Hoa main canal,<sup>13</sup> and DHIS.<sup>14</sup> They will be updated upon the completion of detailed engineering designs and the collection of data from detailed measurement surveys.

42. Fourteen Khmer ethnic minority households with 60 people live in the Tan Bien irrigation area. None of them is severely affected by land acquisition or resettlement.<sup>15</sup> The project will not negatively affect (i) customary rights to use, and access to, land and natural resources; (ii) socioeconomic status; (iii) cultural and communal integrity; (iv) health, education, livelihood, and social security status; or (v) the recognition of indigenous knowledge. Further, the vulnerability of affected ethnic minorities is not worsened.<sup>16</sup> There are 10,553 females living in 4,683 households affected by the project.<sup>17</sup>

## **C. Environmental Impacts**

43. In accordance with ADB policies for supplementary financing, an addendum to the environmental management plan has been prepared.<sup>18</sup> As the project scope is unchanged, it

<sup>9</sup> The increase in farm income is higher in the DHIS than in the TBIS because more intensive agriculture is practiced in Duc Hoa and the impact of improved irrigation is greater.

<sup>10</sup> Resettlement Issues (accessible from the list of linked documents in Appendix 2).

<sup>11</sup> Resettlement Framework: Updated (accessible from the list of linked documents in Appendix 2).

<sup>12</sup> Resettlement Plan: Tan Bien Irrigation (accessible from the list of linked documents in Appendix 2).

<sup>13</sup> Resettlement Plan: Duc Hoa Main Canal (accessible from the list of linked documents in Appendix 2).

<sup>14</sup> Resettlement Plan: Duc Hoa Irrigation (accessible from the list of linked documents in Appendix 2).

<sup>15</sup> Summary Poverty Reduction and Social Strategy: Updated (accessible from the list of linked documents in Appendix 2).

<sup>16</sup> Updated Poverty and Social Analysis (accessible from the list of linked documents in Appendix 2).

<sup>17</sup> Gender Action Plan (accessible from the list of linked documents in Appendix 2).

<sup>18</sup> Addendum to the Environment Management Plan (accessible from the list of linked documents in Appendix 2).

remains environmental category A. Potentially significant impacts have been mitigated through preventive measures and offsets currently under implementation. Impacts pertaining to the supplementary loan are temporary, reversible, and localized, and no significant adverse environmental impacts are foreseen.

#### **D. Risks**

44. Farmers' slow adoption of irrigated agriculture has the potential to delay benefits. In previous irrigation projects where only primary and secondary canals were completed, farmers were unable to mobilize resources to complete tertiary and on-farm infrastructure. The project will adhere to provincial government policy and complete construction to the tertiary level with assistance from counterpart funds. Farmers' contributions will be limited to constructing on-farm irrigation systems and providing labor for maintenance of tertiary canals. Further, the OSDP will facilitate the formation of water users groups and the extension of irrigated agriculture technologies based on market demand. With this support, farmer adoption is expected to be rapid.

45. An integrated river basin approach involving all government agencies active in water resources management is necessary to ensure that the needs of all stakeholders are considered. While the project design provides for organizational capacity building to manage the needs of rural and DMI water users, a more comprehensive approach will be adopted by cooperating with related initiatives that also consider the operational demands of upstream hydropower companies. AFD is providing a technical assistance grant to study integrated river basin management and address these concerns.<sup>19</sup>

#### **V. ASSURANCES**

46. The government has assured ADB that the implementation of the project shall conform to all applicable ADB policies including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in loan documents.

#### **VI. RECOMMENDATION**

47. I am satisfied that the proposed supplementary loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the supplementary loan in various currencies equivalent to SDR38,594,000 to the Socialist Republic of Viet Nam for the Phuoc Hoa Water Resources Project from ADB's Special Funds resources with an interest charge at the rate of 1.0% per annum during the grace period and 1.5% per annum thereafter; a term of 32 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan agreement presented to the Board.

9 March 2011

Haruhiko Kuroda  
President

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<sup>19</sup> Terms of Reference for Integrated River Basin Management Study (accessible from the list of linked documents in Appendix 2).

## DESIGN AND MONITORING FRAMEWORK: UPDATED

Design Summary	Performance Targets and/or Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
<b>Impact</b> Sustainable economic growth in rural, urban, and industrial areas in HCMC and surrounding provinces in accordance with the regional master plan	Real average economic growth rate in the project area increases from 6.4% to 8.5% during the period 2016 to 2020	Updates of the general master plan report for social economic development of the south east region	<b>Assumptions</b> Stable political and local security conditions  <b>Risks</b> Rapidly changing economic situation and production patterns  Adverse global climate change
<b>Outcome</b> Additional water supplies in the Saigon and VCD river basins for irrigation, DMI use, and salinity control efficiently provided and sustainably ensured	55 cubic meters of water per second diverted from the Be River to the Dau Tieng Reservoir on the Saigon River by 2014	Daily records of the system monitoring basin transfers from Phuoc Hoa to Dau Tieng Reservoir  Monitoring reports of the IMCs	<b>Assumptions</b> Dau Tieng IMC building capacity to efficiently manage basin transfers  Surplus supplies continuing to be available in the Be River for diversion to Dau Tieng Reservoir.  <b>Risks</b> Extraordinary weather events such as prolonged drought and typhoons
<b>Outputs</b> 1. Strengthened capacity of water-related organizations in the Phouc Hoa project area  2. On-farm irrigation systems developed and intensified agriculture practices adopted  3. Project affected households fully resettled and compensated	Dau Tieng IMC operates the basin transfer facilities and main canals efficiently and sustainably by 2014  Provincial IMCs operate the primary and secondary canals efficiently and reliably deliver water to farmers by 2014  Water users groups formed for 90% of irrigable area by 2016  50% of the farmers in the project areas adopt diversified farming practices and produce higher valued crops by 2016  4,683 affected households resettled and compensated by 2012 without loss of livelihoods	Maintenance plan and financial records of Dau Tieng IMC  Maintenance plan and financial records of provincial IMCs  ICMB9 progress reports ADB review mission reports Project completion report  Independent resettlement monitoring reports  ADB review and safeguard compliance missions	<b>Assumptions</b> Implementing agencies with sufficient numbers of qualified staff  Dau Tieng and provincial IMCs adopt modern techniques for operating the basin transfer facilities and irrigation systems  <b>Risks</b> Interagency conflicts threaten the integrated operation of the system  <b>Assumptions</b> Agricultural credit available to support on-farm investment  Markets and prices of farm outputs provide adequate incentives for farmers  Affected people accept the compensation packages offered  Government budget sufficient to cover compensation costs

Design Summary	Performance Targets and/or Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks	
4. Environmental management plan successfully implemented	Water quality monitoring system for the project area fully operational by 2014	Water quality records  ADB review and safeguard compliance missions	Government supports the plan and providing qualified staff  Government enforces environmental regulations to control polluting industries	
5. Basin transfer facilities operating, and irrigation and DMI water supplied	Transfer facilities able to divert up to 55 cubic meters per second from the Be River to Dau Tieng Reservoir by mid-2011	IMC records of flows diverted from the Be River to Dau Tieng Reservoir	<b>Risks</b> Extraordinary weather events such as typhoons and prolonged drought	
6. Irrigation facilities constructed and operating	Additional 20,545 ha of agricultural land receiving reliable irrigation by 2016	ICMB9 progress reports  ADB review mission reports  Project completion report	<b>Assumptions</b> The existing DTIS operates efficiently	
<b>Activities with Milestones</b>			<b>Inputs</b>	
1.1 Establish project management units with capacity and resources to implement the project by 2006			<b>Total costs: \$329.5 million</b>	
1.2 Establish task force for formulating and implementing reforms of service standards to make IMCs financially viable and accountable to ensure sustainable system by 2007				
1.3 Strengthen capacity of IMCs to operate and maintain the system by 2014			<b>ADB: \$155.0 million</b>	
2.1 Ensure farmers participate in on-farm irrigation design and operation by 2016			<b>Item</b>	<b>Amount</b> (\$ million)
2.2 Transform on-farm systems from rain-fed to diversified irrigated agriculture by 2016			Civil Works	116.8
			Consultants	12.3
			Resettlement	17.0
			Others	8.9
2.3 Effectively implement social support programs for people adversely affected by resettlement and for other disadvantaged groups by 2014			<b>Government: \$109.8 million</b>	
3.1 Effectively resettle affected households and complete compensation by 2012			<b>Item</b>	<b>Amount</b> (\$ million)
4.1 Effectively implement environmental management plan by 2014			Civil Works	26.1
			Consultants	1.5
			Resettlement	81.2
			Others	1.0
5.1 Construct Phouc Hoa barrage and ensure it is operating effectively by 2011			<b>AFD: \$61.0 million</b>	
5.2 Construct transfer canal to Dau Tieng Reservoir and ensure it is operating effectively by 2011			<b>Item</b>	<b>Amount</b> (\$ million)
5.3 Ensure DMI water is effectively supplied to four provinces and HCMC by 2014			Civil Works	53.9
			Consultants	3.9
			Others	3.2
6.1 Construct Tan Bien irrigation system and ensure it is operating effectively by 2016			<b>Farmers: \$3.7 million</b>	
6.2 Construct Duc Hoa irrigation system and ensure it is operating effectively by 2016			<b>Item</b>	<b>Amount</b> (\$ million)
			Civil Works	3.7

ADB = Asian Development Bank, AFD = Agence Française de Développement, DTIS = Dau Tieng irrigation system, DMI = domestic, municipal, and industrial, GDP = gross domestic product, ha = hectare, HCMC = Ho Chi Minh City, ICMB9 = Hydraulic Project Investment and Construction Management Board No. 9, IMC = irrigation management company, MARD = Ministry of Agriculture and Rural Development, VCD = Vam Co Dong.

Source: Asian Development Bank.



**LIST OF LINKED DOCUMENTS**

<http://www.adb.org/Documents/RRPs/?id=29296-02-3>

1. Loan Agreement
2. Economic and Financial Analysis
3. Country Economic Indicators
4. Summary Poverty Reduction and Social Strategy: Updated
5. Gender Action Plan
6. Resettlement Plan: Tan Bien Irrigation
7. Resettlement Plan: Duc Hoa Main Canal
8. Resettlement Plan: Duc Hoa Irrigation
9. Resettlement Framework: Updated
10. Resettlement Issues
11. Analysis of Cost Overruns
12. Revisions to the Project Administration Memorandum
13. Detailed Cost Estimates
14. On-Farm and Social Development Program
15. Detailed Economic Analysis
16. Updated Poverty and Social Analysis
17. Addendum to the Environmental Management Plan
18. Terms of Reference for Loan-Funded Project Implementation Consultants
19. Terms of Reference for Integrated River Basin Management Study