

ASIAN DEVELOPMENT BANK

TAR: INO 32359

**TECHNICAL ASSISTANCE
(Cofinanced by the Japan Special Fund)**

TO THE

REPUBLIC OF INDONESIA

FOR PREPARING THE

PARTICIPATORY IRRIGATION SECTOR PROJECT

December 2001

CURRENCY EQUIVALENTS

(as of 16 November 2001)

Currency Unit	–	Rupiah (Rp)
Rp 1.00	=	\$0.000094
\$1.00	=	Rp 10,600.00

ABBREVIATIONS

ADB	-	Asian Development Bank
CBPWRS	-	Capacity Building Project in the Water Resources Sector
DGWR	-	Directorate General of Water Resources
FMISP	-	Farmer Managed Irrigation Systems Project
IMPR	-	Irrigation Management Policy Reform
IWRM	-	Integrated Water Resources Management
ISA	-	initial social assessment
ISF	-	irrigation service fee
JIIWMP	-	Java Irrigation Improvement and Water Management Project
NWRP	-	National Water Resources Policy
O&M	-	operation and maintenance
PROPENAS	-	<i>Program Pembangunan Nasional</i> (National Development Program)
R&U	-	Rehabilitation and Upgrading
TA	-	technical assistance
WUA	-	water users association

NOTES

- (i) The fiscal year (FY) of the Government ends on 31 December.
- (ii) In this report, "\$" refers to US dollars

I. INTRODUCTION

1. The Government of the Republic of Indonesia (the Government) has requested the Asian Development Bank (ADB) for technical assistance (TA) for preparing a participatory irrigation sector project. This report is based on the findings of the Fact-Finding Mission that visited Indonesia from 11 to 19 September 2001 and reached an understanding with the Government on the objectives, scope, terms of reference, cost estimates, financing plan, and implementation arrangements for the TA.¹

II. BACKGROUND AND RATIONALE

2. Massive investments over the last three decades in rehabilitation and upgrading (R&U) of existing irrigation systems and construction of new systems helped Indonesia to substantially increase its rice production, improve food security, and reduce rural poverty. About 82 percent of the rice produced in the country is grown under irrigation. Irrigated agriculture, however, faces increasingly complex problems and the viability and sustainability of public investment in irrigation are valid concerns for the Government and its development partners.

3. About 80 percent of freshwater available in the country is used for irrigation. However, with increasing degradation of river catchments and consequent diminishing water resources, and rapidly growing urbanization and industrialization, water resources are being constrained and water quality has deteriorated. Water is a critical resource and an essential input to the country's development process, and in recent years the Government has initiated substantial rationalization of policies and the institutional framework for the water resources sector. Supported by the ADB-assisted Capacity Building Project in the Water Resources Sector² and the World Bank-financed Water Resources Sector Adjustment Loan, a national water resources policy (NWRP) has been drafted and the major policy thrusts have been reflected in the Broad State Policy Guidelines of 1999 and the National Development Program (PROPENAS, 2001-2005). The NWRP aims at adopting a holistic approach in water resources management to ensure sustainable, economic, and multisectoral allocation and use of water. The preparation and issuance of administrative and legal instruments for implementing the NWRP is in progress. The successful implementation of the NWRP will require strengthening the national and regional institutions responsible for planning, developing, managing, and regulating water resources. The institutional strengthening needs have become more critical with the ongoing fiscal and administrative decentralization of the government. The provincial and district water resources services, which have so far played relatively minor roles in planning, designing and implementing water resources development schemes, will need to be adequately strengthened for shouldering new responsibilities being devolved to them by the national sectoral agency, the Directorate General of Water Resources (DGWR) of the Ministry of Settlement and Regional Infrastructure.

4. Another issue is the physical and fiscal sustainability of irrigation facilities. The development and operation and maintenance (O&M) of irrigation infrastructure has claimed a large share of public resources invested in agriculture during the last three decades. Despite high subsidies, efficient and sustainable O&M was not being achieved. In 1987, the Government adopted the Irrigation O&M Policy, which aimed at nationwide introduction of irrigation service fees (ISFs) and transfer of irrigation systems of less than 500 hectares to water users associations (WUAs). ISFs were intended to eventually fully finance the O&M expenditures of

¹ The TA first appeared in the *ADB Business Opportunities* (Internet version) on 8 September 2001.

² Loan 1339-INO, for \$27.7 million, approved on 6 December 1994.

public irrigation systems.³ However, collection efficiencies continued to be low and targets for turnover of irrigation systems to WUAs remained underachieved. Consequently, O&M continued to be the Government's responsibility, and allocated funds were primarily used for staff support and administrative activities. The issues were examined in 1997–1998 under the TA, Assessment of Options for Sustainable Irrigation Development.⁴ The TA concluded that (i) the lack of transparency in the use of ISFs prevented most farmers from paying ISFs, (ii) WUAs were established in many systems, but their legal status remained unclear and they lacked capacity to take active roles in system O&M, (iii) R&U of systems prior to strengthening of WUAs acted against the sustainability of the turnover program, and (iv) WUAs should be required to share R&U costs to ensure proper O&M and avoid periodic rehabilitation. The findings were reviewed again in the context of the Water Resources Sector Adjustment Loan, and the President of Indonesia issued in April 1999 a decree on Irrigation Management Policy Reform (IMPR), with participatory irrigation development and management as the core of the reform agenda. The important features of the reform are (i) provision for establishment of self-governed and self-reliant WUAs with adequate legal framework and management jurisdiction over part or all of the irrigation network in the system, (ii) authorization of WUAs to levy and collect ISF and retain them for funding O&M activities, (iii) development of a framework for WUAs' funding O&M and R&U on a cost sharing basis, and (iv) turnover of small- and medium-scale systems and secondary and tertiary segments of large systems to WUAs. The implementation of the IMPR will require amending Government Regulation (*PP*) 23 of 1982 on irrigation, and an amendment is being reviewed by the Office of the State Secretary for approval within 2001. Directives have been issued through a ministerial instruction allowing the WUAs to levy and collect ISF and use it for O&M.

5. The Government policy on food security has a bearing on irrigation issues. The broad guidelines of 1999 and the National Development Program (PROPENAS, 2001-2005) highlight the importance of developing a food security system based on guaranteed availability of diverse food resources at affordable prices to meet the population's requirements for balanced nutrition. The policy promotes diversification of irrigated agriculture and development of nonrice food crops in areas with comparative technical and marketing advantages. High value diversified crops will also improve the profitability of irrigated agriculture in the face of continued low price of rice in the world market. Such crop diversification will, however, require remodeling of the irrigation facilities to meet the water requirements of the new crops.

6. The implementation of the policies and institutional reforms will require complementary investment programs to catalyze technical, institutional, and management improvements in existing irrigation systems and selected development of new irrigation systems. The operating performance of many irrigation systems is less than satisfactory because of infrastructure constraints and inadequate institutional arrangements for O&M and water management. The operating performance, and thereby the yields and farmers' income in most of these systems could be improved for a relatively low cost through remedial and improvement works and institutional strengthening at the system level. In public irrigation systems, the participatory approach to irrigation development and management will lessen the government's burden in irrigation development and improve the WUAs' management of the systems. The IMPR provisions for increased participation of and cost sharing by WUAs are being piloted in 12 provinces under the Java Irrigation Improvement and Water Management Project (JIIWMP, assisted by the World Bank and the Netherlands), and the initial results have been highly satisfactory. A similar approach has been adopted under the ADB-assisted Farmer Managed

³ Public systems cover about 80 percent of the total irrigation service area of 6.2 million hectares.

⁴ TA 2679-INO, for \$1,120,000, approved on 5 November 1996.

Irrigation Systems Project (FMISP),⁵ involving small-scale irrigation systems owned and managed by farmers who carried out the upgrading works on a cost-sharing basis. The FMISP has been substantially completed, one year ahead of schedule. Encouraged by the performance of the JIIWMP and FMISP, the Government has requested ADB to help prepare an investment project (the Project) that will facilitate implementation of the policy reforms in water resources management and improve the sustainability of irrigated agriculture. The Project will be consistent with ADB's operational strategy for Indonesia, which emphasizes poverty reduction, with natural resources management as a thematic priority.

III. THE TECHNICAL ASSISTANCE

A. Objectives

7. The TA will assist the Government in (i) formulating a project for promoting participatory approaches to sustainable management of water resources, (ii) improving the efficiency and productivity of irrigated agriculture in primarily small- and medium-scale systems, (iii) increasing and diversifying farm income, and (iv) reducing poverty. Technical, environmental, financial, institutional, and social sustainability are fundamental goals of the envisioned project. The TA framework is in Appendix 1.

B. Scope

8. The TA will comprise a feasibility study of an investment project to support (i) ongoing rationalization of policies and practices for water resources management, (ii) evolving administrative and fiscal decentralization related to sectoral development, and (iii) strategic thrusts for developing food security and reducing poverty. The ensuing Project is expected to provide for (i) strengthening institutional capacity of sectoral agencies at national, regional, and local levels; (ii) promoting basin-wide integrated water resources management (IWRM) for multisectoral uses; (iii) strengthening WUAs including legal empowerment for increased participation in the construction and management of irrigation systems; and (iv) implementing a program for low-cost improvements of small- and medium-scale systems and secondary and tertiary segments of large systems, and their turnover to WUAs.

9. The Project will be implemented in six provinces: (i) Central Java, (ii) East Java, (iii) South Sulawesi, (iv) South Sumatra, (v) West Java, and (vi) West Nusa Tenggara. In selecting the provinces, the following were considered: incidence of poverty, local demands and needs, provincial interest, and initial response to IMPR and the participatory approach to irrigation management. Five of the six provinces (excluding South Sulawesi) have high to medium poverty incidences and low resource bases. Four of Indonesia's five strategic river basins, including priority areas for IWRM, are in these provinces and the demand and scope for improving the operating performance of irrigation systems are relatively high.⁶ The provinces have shown strong interest to participate in the project. Under the JIIWMP, the IMPR's participatory approach is being pilot tested in public systems in five of the six provinces (excluding West Nusa Tenggara). The approach has been successfully used in farmer-owned system under the FMISP in South Sulawesi, West Java, and West Nusa Tenggara.

10. The study will review the Government's initiatives in rationalizing the water resources sector policies, assess the progress in issuing administrative and legal instruments to support

⁵ Loan 1378- INO(SF), for \$26.3 million equivalent, approved on 21 September 1995.

⁶ The four strategic river basins are Jeratun Seluna and Serayu in Central Java, Bengawan Solo in Central and East Java, and Jeneberang in South Sulawesi.

these policies and institutions, and identify pending policy issues and administrative and legal instruments that are important for sustainable development of the water resources sector in general and the Project in particular. The findings will form the basis for a policy dialogue between ADB and the Government.

11. The study will assess the capacity building needs of the national-level institutions for coordination and implementation of the NWRP and sectoral developments. The TA will also review the organizational set-up and capacity of the sectoral agencies at provincial and district levels; assess their adequacy to meet the implementation requirements of the NWRP and IMPR, and the new responsibilities under the evolving regional autonomy; and develop a program for institutional strengthening, particularly in hydrometeorological data monitoring and providing technical support and services in participatory development and management of irrigation infrastructure. A similar analysis will be undertaken to assess the adequacy of financial resources of provincial and local governments to meet the institutional strengthening needs, and to support an investment program for development and management of water resources.

12. The study will (i) review the implementation status of the ongoing program for establishing river basin management units in key basins in the project provinces for basin-wide IWRM, including management of watershed and protection of key ecosystems; and (ii) identify additional technical and financial support that may be required to make these units fully functional. In addition, efforts will be made to clarify the legal status of water rights and to develop an appropriate coordination mechanisms in catchments with multiple small-scale or other irrigation systems where project interventions are planned. The study will also assess the status of the Government initiatives for establishing a corporate river basin management entity for each of the four strategic basins in the project provinces and identify the scope of additional support and assistance needed to accelerate the process.

13. In formulating the irrigation systems R&U component, the TA will involve the following interrelated activities: (i) design a participatory strategy of technical, organizational, management, and financial assistance to irrigation schemes focused on improving operating efficiency and increasing farm incomes; (ii) design a program to strengthen WUAs, including legal empowerment, and ensure inclusion of poor and disadvantaged members of the community in WUAs;⁷ (iii) prepare appraisal reports for five core irrigation systems (subprojects) representative of the types of systems⁸ to be developed under the Project.

14. The study will analyze the Project's social dimensions to enhance the focus on poverty reduction and promote transparency and participation. The project design will provide for appropriate measures to address any adverse impacts on any section of the communities, including recognition of traditional rights to land and water resources and rehabilitation of families affected by construction activities in the Project.

15. The study will be conducted in close coordination with other agencies and institutions active in the sector. The progress in the preparing and issuing the administrative and legal instruments for enforcing the NWRP and IMPR will be reviewed, and the project design will be sufficiently flexible to mitigate the impact of any delays in issuing these instruments.

⁷ The TA will take into account the findings of the proposed Netherlands-assisted study for legal empowerment of rural institutions in the Project area.

⁸ Including farmer-owned and farmer-managed irrigation systems, ground water systems, small- and medium-scale public systems, and tertiary and secondary segments of large systems.

C. Cost Estimates and Financing Plan

16. The total cost of the TA is estimated at \$1,000,000 equivalent, of which \$565,000 is the foreign exchange cost and \$435,000 equivalent is the local currency cost. The Government requested ADB to finance \$800,000 equivalent to cover the entire foreign exchange cost of \$565,000 and \$235,000 equivalent of local currency cost. The TA will be financed by ADB on a grant basis, which comprises \$600,000 from the Japan Special Fund, funded by the Government of Japan, and \$200,000 from the ADB-funded TA Program. The Government will finance the balance of the local currency cost, equivalent to \$200,000, through the provision of remuneration and benefits of counterpart staff, travel and per diem costs of counterpart staff, office accommodation and equipment, data collection and compilation, and public consultations through workshops and seminars. The cost estimates and financing plan are given in Appendix 2. The Government has been advised that approval of the TA does not commit ADB to finance any ensuing project.

D. Implementation Arrangements

17. The TA will be implemented by a team of international consultants in association with domestic consultants and technicians. The consultants, to be engaged through a firm, will be selected by ADB in accordance with the *Guidelines on the Use of Consultants* and other arrangements satisfactory to it for the engagement of domestic consultants.⁹ A total of 54 person-months (22 international and 32 domestic) of consultant services will be required. The international consultants will have expertise in (i) institutional development, (ii) public administration and fiscal analysis, (iii) participatory irrigation planning and development, (iv) irrigation systems design, (v) agricultural economics, (vi) sociology and rural poverty, and (vii) environment. The domestic consultants will have expertise in (i) public administration and fiscal analysis, (ii) participatory irrigation planning and design, (iii) institutional development, (iv) WUAs and rural institutions, (v) river basin management, (vi) legal empowerment, (vii) agronomy, (viii) sociology and rural poverty, (ix) resettlement planning, and (x) environment. In addition, the team will include five technicians in community organizing for a total of 15 person-months. Appendix 3 provides the outline terms of reference for the consultants and technicians. The TA is expected to commence in March 2002 and will end in July 2002.

18. The Executing Agency for the TA will be DGWR. DGWR, in collaboration with the participating provinces and districts, will provide all required office space and counterpart support in Jakarta and the provinces. The TA will liaise closely with the Directorate General of Agricultural Facilities of the Ministry of Agriculture, which is responsible for farm extension, and with the Directorate General of Regional Development of the Ministry of Home Affairs and Regional Autonomy on matters related to WUAs. The provincial and district planning and development agencies will coordinate TA implementation at field level, with active participation of staff of concerned sectoral agencies in TA implementation.

IV. THE PRESIDENT'S DECISION

19. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance, on a grant basis, to the Government of the Republic of Indonesia, in amount not exceeding the equivalent of \$800,000 for the purpose of preparing the Participatory Irrigation Sector Project, and hereby reports such action to the Board.

⁹ The methodology and terms of reference of the consulting services are specific and clearly identified. Hence, ADB's procedure for simplified technical proposal will be used to select the consultants (*Project Administration Instructions*, 3.01, paras. 41-42, 1 July 1996).

TECHNICAL ASSISTANCE FRAMEWORK

Design Summary	Performance Targets	Monitoring Mechanisms	Assumptions and Risks
<p>1. Goal Improved management of water resources for economic and social development and environmental protection.</p>	<ul style="list-style-type: none"> • Sustainability of irrigated agriculture improved • Rural poverty incidence reduced 	<ul style="list-style-type: none"> • Sectoral reports prepared by funding agencies, bilateral agencies, and the Government 	<ul style="list-style-type: none"> • Ongoing reforms rationalizing water resources sector policies are implemented • Poor districts and subdistricts are targeted for support
<p>2. Purpose Formulation of a project aimed at promoting participatory approaches to water resources management for improving efficiency of irrigated agriculture, increasing and diversifying farm income, and reducing poverty, and supporting integrated water resources management (IWRM) with river basins as the planning units.</p>	<ul style="list-style-type: none"> • Proposed project is endorsed by potential beneficiaries, governments at national, provincial, and district levels and ADB 	<ul style="list-style-type: none"> • Local workshops • Consultant's reports (inception, status, draft final, and final reports) • TA review missions 	<ul style="list-style-type: none"> • All stakeholders will actively participate in project preparation
<p>3. Output A comprehensive feasibility study report of an investment project including</p> <ul style="list-style-type: none"> • an assessment of the Government initiatives for rationalizing water resources policies, and identification of pending policy issues and administrative and legal instruments that are important for sustainable management of water resources; • a comprehensive institutional and fiscal analysis of sectoral agencies at national, provincial and district level; provincial and district governments; and water users associations (WUAs) in the context of the new roles envisaged in the new national water resources and irrigation management policies; • a participatory strategy for technical, organizational, management, and financial assistance for rehabilitation and upgrading (R&U) of small- and medium-scale irrigation systems; • a program for strengthening WUAs including legal 	<ul style="list-style-type: none"> • The consultant team will have full understanding of the sectoral problems, issues, and potentials • Meets the capacity building needs in the water resources sector for the evolving administrative and fiscal decentralization of the Government, and implementation of sectoral policy reform initiatives by the Government • Should be consistent with the Irrigation Management Policy Reform of the Government and acceptable to all stakeholders • Should be supported by experience gained in 	<ul style="list-style-type: none"> • Consultant's reports (inception report, midterm report, status report, draft final report, and final report) • TA review missions 	<ul style="list-style-type: none"> • Continued commitment of government at various levels • Takes into account the administrative and fiscal decentralization laws (22/99 and 25/99). • Continued commitment of regional and local governments

(Reference in text: page 3, para. 7)

Design Summary	Performance Targets	Monitoring Mechanisms	Assumptions and Risks
<p>empowerment;</p> <ul style="list-style-type: none"> • feasibility level design for R&U of five irrigation systems and criteria for selection of additional systems during project implementation; • an initial environmental examination, its summary, environmental impact assessment, and its summary, as may be necessary; • an indigenous peoples' development plan and resettlement plans, if required; • detailed cost estimates of the project proposal including a financing plan showing the share of project costs to be borne by national, provincial, and district governments, and WUAs; and • justifications in support of the project including economic and financial viability, social and environmental desirability, and impact on poverty reduction and water resources management. 	<p>other projects notably the Farmer Managed Irrigation and Java Irrigation Management Projects</p> <ul style="list-style-type: none"> • The study meets ADB standards for appraisal of sector projects • Meets ADB's environmental assessment requirements • Meets ADB's policies on indigenous peoples' development and involuntary resettlement • Based on updated unit costs, and cost-sharing arrangements agreed by the parties concerned • Based on proper analysis of social, institutional, engineering, environmental, financial, and economic factors involved 		<ul style="list-style-type: none"> • Continued commitment to cost-sharing arrangements
<p>4. Activities</p> <p>(i) International Consultants (22 person-months)</p> <p>(ii) Domestic Consultants (32 person-months)</p> <p>(iii) Domestic Technicians (15 person-months of community organizers)</p> <p>(iv) workshops (three)</p> <p>(v) Socioeconomic surveys</p>	<ul style="list-style-type: none"> • Seven international and ten domestic consultants working in a team over a period of five months. • Experts drawn from a wide range of disciplines • WUAs in core subproject irrigation systems are strengthened. • Study findings and recommendations discussed. 	<ul style="list-style-type: none"> • Consultant's reports (inception report, midterm report, status report, draft final report, and final report) • TA review missions 	<ul style="list-style-type: none"> • Adequate counterpart support made available in time. • Full-time involvement of domestic consultants. • Community organizers are adequately experienced. • Stakeholders will actively participate in the study.

COST ESTIMATES TABLE
(\$'000)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank Financing^a			
1. International Consultants			
a. Remuneration	374.0	0.0	374.0
b. Per Diem	67.0	0.0	67.0
c. International Travel	48.0	0.0	48.0
2. Domestic Consultants and Technicians: Remuneration and Per Diem	0.0	125.0	125.0
3. Socioeconomic Survey	0.0	15.0	15.0
4. Domestic Travel and Field Costs (international and domestic consultants)	0.0	50.0	50.0
5. Miscellaneous Administration and Support Costs	0.0	5.0	5.0
6. Office Supplies and Report Printing	0.0	10.0	10.0
7. Government Observers At Contract Negotiations	5.0	0.0	5.0
8. Contingencies	71.0	30.0	101.0
Subtotal (A)	565.0	235.0	800.0
B. Government Financing			
1. Office Space and Equipment	0.0	50.0	50.0
2. Data Collection and Compilation	0.0	30.0	30.0
3. Counterpart Staff Remuneration and Benefits	0.0	50.0	50.0
4. Travel and Per Diem Costs of Counterparts	0.0	35.0	35.0
5. Workshops and Seminars	0.0	35.0	35.0
Subtotal (B)	0.0	200.0	200.0
Total	565.0	435.0	1,000.0

a Financed from the Japan Special Fund and the ADB-funded TA program.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. Project Formulation

1. Review of Policies and Strategies

1. The consultants will review the recent policy initiatives of the Government for rationalizing water resources development and irrigation management, update the progress in issuing various administrative and legal instruments for implementing these policies, and identify pending administrative and legal instruments and outstanding policy issues that have important bearing on successful implementation of the project being prepared. They will evaluate the current trends in irrigated agriculture in the light of the recent shift in planning emphasis from rice self-sufficiency to food security and crop diversification, trends in farm prices, and relative returns to rice and other farm-related activities, and assess the prospect of a market-led crop diversification in the project provinces and its implications in designing the ensuing Project.

2. Institutional Strengthening and Fiscal Analysis

2. The consultants will assess the adequacy of the existing organizational structure, human resources, and support facilities of the national level institutions for coordination and implementation of the national water resources policy (NWRP), identify the capacity building needs and discuss them with other potential funding agencies in the sector to avoid duplication of support and assistance in meeting these needs. They will review the present organizational structure and capacity of the provincial and district water resources services (*Dinas*), agricultural services, and related agencies in project provinces and assess their adequacy to meet the implementation requirements of the NWRP and irrigation management policy reform (IMPR) and the new responsibilities under the evolving regional autonomy. The consultants will make recommendations for institutional strengthening, aiming at reorienting the sector agencies into decentralized service-oriented agencies for (a) gathering hydrological data, monitoring water quality, and operating decision-support systems; (b) planning, designing and developing public infrastructure in the sector; (c) providing technical support and services to water user associations (WUAs) in preparation, development, and management of irrigation structure and adoption of appropriate cropping patterns and production technologies; and (d) maintaining public infrastructure.

3. The consultants will undertake a comprehensive fiscal analysis of the provincial and district governments, taking into account the fiscal autonomy being granted to the provinces, and assess the adequacy of the financial resources to meet the institutional strengthening needs identified and to support an investment program, including the proposed project, for development and management of water resources on a sustainable basis. A similar analysis will be carried out of the present and future resources of WUAs to support a cost-sharing arrangement for rehabilitation and upgrading (R&U) of irrigation systems and their effective operation and maintenance (O&M) after turn over to WUAs.

4. Based on above, the consultants will recommend (i) an appropriate arrangement for financing the implementation of the national policies on water resources and irrigation management in the short-to-medium term, and (ii) a financing plan for sharing the ensuing project costs by the national, provincial, and district governments and the farmer beneficiaries (WUAs), commensurate with their capacities.

3. Integrated Water Resources Management in Basin Context

5. The consultants will review the implementation status of the ongoing program for establishing river basin management units in key basins in the project provinces for basin-wide integrated water resources management (IWRM), including management of watershed and protection of key ecosystems, and identify additional technical and financial support that may be required to make these units fully functional. They will also assess the status of the Government initiatives for establishing a corporate river basin entity for each of the four strategic river basins in the project provinces and identify the need of additional support and assistance to accelerate the process. Based on the above, the consultants will design a component of the proposed project to provide policy, institutional and investment support for promoting IWRM in the project area.

4. Strengthening Water Users Associations

6. The consultants will assess the status, organization, and functioning of formal WUAs and existing indigenous social organizations in irrigation related activities in the project provinces in general and the core subproject in particular (para. 7), and evaluate the capabilities and performance of WUAs and local informal groups in O&M and water/crop management. They will review the legal status of WUAs vis-à-vis their roles and responsibilities in public irrigation systems R&U and O&M as expected under IMPR, and identify the shortfalls and deficiencies. In this regard, the consultants will coordinate with the proposed Netherlands-assisted Asia Foundation study for legal empowerment of rural institutions in the project area to add synergy and avoid duplication of activities. They will also review and assess the experience gained in pilot testing of the IMPR provisions in the Java Irrigation Improvement and Water Management Project (JIIWMP) and identify the constraints, ambiguities, and risks, if any, to effective ownership and post turnover O&M of the systems by the WUAs. Based on the above, a program will be formulated for development of WUAs and strengthening their legal status to enhance the efficiency and sustainability of irrigated agriculture in the project area.

5. Formulation of the Irrigation Component

7. In formulating the irrigation component, the consultants will (i) review the lessons learned from the past efforts in improving the irrigation systems performance and assess the effectiveness of the Farmer Managed Irrigation Systems Project and the Netherlands-assisted pilot activities in the JIIWMP in addressing common constraints; (ii) prepare an inventory of irrigation systems in the project provinces with potential for improved operating performance; (iii) design participatory financing strategies and methodologies including improved government administrative procedures to streamline local participation in the implementation of technical and other improvements; (iv) based on above, and taking into account technical, economic, social, institutional, and environmental considerations, prepare a comprehensive criteria for subproject (systems) selection, and identify five core subprojects; (v) assess the feasibility of crop diversification in part or whole of the core subprojects from technical, financial, and social view points, and develop, in consultation with farmers, a diversified cropping pattern for the subproject concerned; and (vi) prepare comprehensive appraisal reports for the core subprojects with systematic analyses of technical, economic, social, institutional, and environmental aspects in accordance with ADB guidelines and standards.

6. Analysis of Social Dimensions

8. The consultants will analyze the social dimensions of the project to enhance focus on poverty reduction, promote women's participation, and ensure corrective measures to address any adverse impact of the project on any section of the communities. The analysis will be based on an initial social assessment (ISA) in the potential project area followed by a more intensive assessment in core subproject areas. A poverty analysis will be conducted to (i) assess the nature, intensity, and extent of poverty in the project area and the areas to be directly influenced by it; (ii) develop a strategy to target project benefits to the poor to meet at least the poverty intervention criteria, and preferably the core poverty intervention criteria, of ADB; and (iii) estimate the proportion of poor among the beneficiaries in the core subprojects and assess the poverty orientation levels of the subprojects. The consultants will conduct a gender analysis as part of the ISA for the potential project area, followed by a more intensive analysis in the core subproject areas, to (i) analyze the roles and activities of men and women in the client population, their access to and control of resources, and expected involvement in the activities to be supported by the ensuing Project; and (ii) identify and provide for in the project design appropriate measures to promote women's participation in the project planning, implementation, and management, and benefit from the project interventions. The potential impact of the proposed development activities on the indigenous people in the project area will be assessed and, if required, an indigenous peoples development plan will be prepared following ADB's *Policy on Indigenous Peoples*.

7. Land Acquisition and Resettlement

9. The Project design will provide for appropriate measures to avoid or minimize land acquisition and involuntary resettlements of household affected by the construction activities in the Project. Potential impacts of resettlements will be assessed and reflected in the ISA. The consultants will (i) draft, in consultation with local people and government and in accordance with the requirements of ADB's *Handbook on Resettlement: A Guide to Good Practice*, a resettlement policy framework to guide the involuntary resettlements in the project; and (ii) assist the local governments in preparing resettlement plans for the households affected, if any, in the core subprojects, consistent with the ADB's requirements.

8. Environmental Assessment

10. For each core subproject, the Consultants will prepare an initial environmental examination report and a summary in accordance with the *Environmental Assessment Requirements of the Asian Development Bank* (March 1998). If the findings warrant, an environmental impact assessment report and a summary will be prepared for the core subproject concerned. Any measures necessary to eliminate or minimize possible negative impacts will be incorporated into the subproject design.

9. Project Cost Estimates, Financing Plan, and Implementation Schedule

11. The consultants will prepare detailed cost estimates, a financing plan, and an implementation schedule in formats suitable for further processing of a loan for the ensuing Project. The cost estimates should be in sufficient detail to meet the Government and ADB requirements, and should be presented using COSTAB software. The financing plan should reflect the cost sharing arrangements agreed by the national and local governments and WUAs.

10. Financial and Economic Analyses

12. The consultants will carry out financial and economic analyses of each core subproject, including cash flow analysis, using FARMOD software and ADB *Guidelines on the Economic Analyses of Projects*. The financial and economic rates of return over the economic life of the Project will be computed and a sensitivity analysis will be undertaken. The analysis will identify the potential risks, and recommend measures to mitigate such risks.

B. Reporting Requirements

13. TA reports to be provided to the Government and ADB will include (i) an inception report, approximately four weeks after the TA's commencement, to briefly summarize the initial findings and present an updated work plan, if necessary, to reflect specific identified issues; (ii) a status report, approximately nine weeks after commencement, highlighting the progress made *vis-a-vis* the study scope and issues, if any; (iii) a draft final report by the 13th week, to be discussed in a tripartite meeting one week later; and (iv) a final report at the end of the study period, reflecting comments made by the Government, ADB, and other relevant institutions.