

**BOARD
OF
DIRECTORS**

ASIAN DEVELOPMENT BANK

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**TECHNICAL ASSISTANCE TO PAPUA NEW GUINEA
FOR PREPARING THE COMMUNITY WATER-TRANSPORT PROJECT
(FINANCED FROM THE JAPAN SPECIAL FUND)**

The attached Report is circulated for the information of the Board. The President approved the technical assistance on 21 December 2000.

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ASIAN DEVELOPMENT BANK

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TECHNICAL ASSISTANCE
(Financed from the Japan Special Fund)

TO

PAPUA NEW GUINEA

FOR PREPARING THE

COMMUNITY WATER-TRANSPORT PROJECT

December 2000

CURRENCY EQUIVALENTS

| | | |
|---------------|---|----------|
| Currency Unit | – | Kina (K) |
| K1.00 | = | \$0.32 |
| \$1.00 | = | K3.00 |

ABBREVIATIONS

| | | |
|-------|---|--------------------------------------------|
| DOTCA | – | Department of Transport and Civil Aviation |
| GMDSS | – | global maritime distress and safety system |
| IMO | – | International Maritime Organization |
| PNG | – | Papua New Guinea |
| SAR | – | search and rescue |
| TA | – | technical assistance |

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 Papua New Guinea (PNG) has requested support from the Asian Development Bank¹ (ADB) for technical assistance (TA) for preparing a community water-transport project.¹

2. Fact-finding for the TA was conducted during ADB's Appraisal Mission for the Rehabilitation of the Maritime Navigation Aids in June 2000. The Mission reached an understanding with the Government on the objectives, scope, cost estimates, financing plan, implementation arrangements, and terms of reference for the proposed consulting services. The TA is included in the 2000 PNG Country Assistance Plan. This report was based on the Mission's observations in the field and discussions with the Government.

II. BACKGROUND AND RATIONALE

3. PNG is ADB's largest Pacific developing member country, with a landmass of 480,000 square kilometers (km²) and sea area of 3.1 million km². PNG has over 17,000 km of coastline and 17 million hectares of reef-covered coastal waters, making it the largest fishing zone in the Pacific. In 1990, 12 percent of the population of 4.2 million inhabited the island provinces and 44 percent the coastal provinces.²

4. The transport system of PNG is multimodal. There are 22 public ports, with numerous wharves, jetties, and landings, many of which are privately operated; about 20,000 km of roads; 46 airports; and hundreds of airstrips. Land transport is constrained by the mountainous terrain in the north and east of the country, which divides the country. Extensive coastal swamps dominate the southwest, with the great delta plain of Daru forming one of the most extensive swamps in the world. The PNG islands consist of volcanic mountains and low coral atolls. Of the 20 provinces, 13 are coastal: National Capital District (NDC) and Bougainville, Central, Milne Bay, Western, Morobe, East Sepik, West Sepik (Sandaun), Manus, New Ireland, West New Britain, and East New Britain. The Fly and Sepik rivers are among the many large rivers. The Fly River is navigable up to 3 meters (m) draft for 840 km and moves supplies to the mines and communities upstream and copper concentrate downstream. The Sepik offers considerable tourism potential and is navigable at 3 m draft for 500 km.

5. Coastal populations have poor access to roads, and communities are often far from airstrips. Due to the difficult geography, shipping thrives and water transport is the primary mode of cargo and passenger transport. Numerous vessels operate on the coastal, interisland, and inland river routes. PNG shipping can be categorized as (i) international through traffic, (ii) coastal traffic between the major ports, and (iii) small vessel traffic serving numerous minor ports. The main ports of Lae, Port Moresby, and Madang handle most of the foreign trade. Other important ports are Alotau, Daru, Kavieng, Kimbe, and Rabaul. Many villages on the shores of the two major rivers are remote and do not benefit from the Government's social services, and commercial and employment opportunities, and face very high prices for goods shipped and transshipped on multiple occasions.

6. A large number of private and commercial voyages and travel occur by small craft. These facilitate transport of produce between the commercial wharves and the remote communities. In the absence of landing facilities, larger vessels typically off-load cargo over the

¹ The TA first appeared in *ADB Business Opportunities* in July 2000.

² A population census is currently being conducted and is expected to yield data in early 2001.

side of the vessel to small craft in difficult maritime weather conditions. Vessels operating in hazardous maritime conditions frequently damage goods and injure persons. The operating costs of these vessels are far from efficient and the safety of such transshipment low.

7. Commercial passenger ferry services are provided by two companies operating in the islands and along the north coast and which serve the main routes. Remote communities make lengthy and risky water-route travel that suffers from limited or non-existent landing sites, navigation infrastructure, and shipping services. Low-traffic-volume routes are serviced only on an ad hoc basis under substandard safety conditions. Access to these remote communities is extremely difficult and ferry services are available only along the main maritime routes, in daylight hours, and during good weather. Subsequently, conditions in the coastal areas are characterized by high prices, poor communications, poor social indicators, and, more specifically, extreme and unsafe seafaring practices.

8. Poverty incidence in the coastal areas of PNG exceeds that of the nation. The World Bank has defined the poverty line for PNG as an amount of income per person that is sufficient to meet a food-energy requirement of 2,200 calories per adult equivalent per day, plus an allowance for nonfood expenditure "based on the spending patterns of households whose food expenditure just reach the food poverty line." Under this criterion, and based on the 1996 national household income and expenditure survey, it is estimated that 37.5 percent of PNG's population fall below the poverty line nationally. Based on estimated populations of the coastal provinces in 2000, the poor under the World Bank criterion comprise 40.2 percent in the coastal provinces: 33.2 percent in the Papuan south coastal areas, 45.8 percent in the Momase north coastal area, and 33.6 percent in the islands. While poverty conditions of the population inhabiting riversides are not available, it is estimated that the poor comprise 844,429 or 46 percent of the coastal population.

9. About 55 percent of the coastal populations draw their primary income from fishing. Half of the coastal residents live more than 5 km away from markets to buy and sell fish and produce, and 32 percent live more than 10 km away. While 33 percent of the residents walk these distances, about a third use maritime transport. For many coastal communities without roads, maritime transport and bush tracks (for walking) are the only means of transport.

10. Thus, a large portion of passenger traffic is carried by small craft less than 10 m long (e.g., 42 percent in Milne Bay and 70 percent in Madang Province). Unsafe boating practices are common. Accidents are often unrecorded and figures are unavailable, but small craft are frequently lost at sea with accidents and deaths unacceptably common. The importance of saving lives and property at sea is reflected in the international conventions that govern public maritime services provision, e.g., regulations under Safety of Life at Sea (SOLAS) and Search and Rescue (SAR) Convention of 1979 under the International Maritime Organization (IMO). Shore-based SAR arrangements must include highly efficient coordination facilities, full-time monitoring services of radio distress frequencies, and the means to offer help at short notice and at high speed. The services need to include constant radio monitoring, operation of high-speed rescue craft, and firefighting equipment, but may extend to rescue helicopters, and medical and similar services. SAR services need to be integrated with shipborne SOLAS equipment. IMO introduced the global maritime distress and safety system (GMDSS) in 1997.

11. In PNG, SAR operations are governed under a National Disaster Plan. Responsibility for maritime SAR operations is divided among a number of agencies, including the Department of Transport and Civil Aviation (DOTCA), Defense Forces, Department of Health, shipping companies, the royal Papua Yacht Club, Red Cross, hospitals, and the Post and

Telecommunications Corporation. DOTCA is the operational center coordinating resources from those agencies. This operation, however, suffers from highly constrained resources, including funding. The accident record is made worse by the limited communication to vessel operators on weather and navigation warnings. Small craft operators do not register departures and estimated arrival times and do not possess adequate skills for calculating fuel consumption in uncertain weather conditions. DOTCA's Maritime Rescue Coordination Center engages currently half a person full-time. Navigational support communications such as a ship reporting system, navigation warnings, weather forecasts and warnings, radio racons, and harbor communications should also contribute to the safety of ships and boats at sea. Rescue operations have frequently been inconclusive. The Government intends to implement the GMDSS recommended by IMO. This requires analysis of the required land-based communications equipment and other resources and the institutional arrangements and policy framework surrounding SAR.

12. The potential for loss of life at sea could be greatly reduced if all motorized small craft were registered, compulsory safety equipment and seaworthiness (e.g. buoyancy) were required on small craft, and reporting requirements and safety procedures as well as preferred routes were made mandatory. Provincial administrative units are instrumental in implementing preventive safety measures, such as preparing bills to register small craft, monitoring safe practices in the use of small craft, and ensuring participation of small craft operators in political decision making. The Government is also committed to an awareness and safety education campaign to educate small boat users on safety.

13. The Government has a plan to establish an inland waterways transport system. The aim is to identify cost-effective means of improving small boat services and infrastructure, inland navigational aids, hydrographic surveys, and key infrastructure to encourage economic growth through safe and efficient inland waterways transport. The feasibility study will include a review of the required infrastructure, shipping and boating services, safety practices, legislation, and institutional and policy frameworks governing the subsector. Associated microscale and poverty-reducing programs will be reviewed to identify possible transport-related bottlenecks in improving standards of living.

14. The Government has recognized the need to fully analyze the sector to understand the fundamental constraints to establishing remote waterway and maritime transport markets. The TA supports the Government's effort to improve delivery of essential services and food to the maritime communities, reduce poverty, and enhance employment and marketing possibilities among the currently remote and often isolated communities. With the support of the TA, the Government aims to establish acceptable seafaring logistics (e.g., landing sites, safehavens, navigation aids, and jetties) with adequate safety prevention programs and facilities to induce development of the remote areas.

III. THE TECHNICAL ASSISTANCE

A. Objectives

15. The project preparatory TA seeks to improve the low-traffic maritime transport conditions and safety, and give remote maritime communities access to employment and marketing opportunities in the mainstream markets of PNG. The TA will prepare an investment program for installation of minor port and maritime safety infrastructure to facilitate safer and more economical remote water-route transport and identify a policy and institutional framework to

ensure sustainability of the priority investments. The TA will target poverty reduction and maximum involvement of the private sector. A framework for the TA is in Appendix 1.

B. Scope

16. The TA includes preparation of a feasibility study examining (i) small infrastructure required to facilitate maritime and river transport, (ii) technical, institutional, and policy solutions for improving the safety of small craft operations; and (iii) future shipping services along low-traffic maritime and river transport routes. The feasibility study will assess poverty reduction and economic, technical, institutional, social, environmental, and policy improvements in accordance with relevant ADB guidelines. It will identify a sustainable and effective delivery mechanism for maintaining the proposed facilities and programs, and organizational, institutional, and human resource improvements, and cost recovery systems that will enable effective and consistent operation and maintenance of the required facilities.

17. Specifically, the TA will (i) identify the demand for and beneficiaries of improved transport systems in remote maritime and river routes; (ii) prepare a prioritized program of remote water-way facilities, services, programs as a feasible investment program for external funding; (iii) establish the economic viability of the proposed programs in accordance with ADB's *Guidelines on Economic Analysis of Projects*; (iv) prepare annual and regular maintenance programs for the proposed systems over a 10-year period; (v) prepare a sustainable management mechanism for delivering the proposed services and facilities; (vi) prepare project implementation and collaborative interagency arrangements; and (vii) determine beneficiaries' willingness to pay and establish a cost recovery policy for provision of the proposed services. The TA will conduct a series of workshops, seminars, and consultations with inhabitants of the remote villages and the ensuing project stakeholders to identify the demand for transport services, the role transport services potentially play in poverty reduction, and small-scale poverty reduction projects constrained in the past by lack of transport services.

C. Cost Estimates and Financing Plan

18. The total cost of the TA is estimated at \$823,600 equivalent, of which the foreign exchange component is \$487,600 and the local currency component is \$336,000 equivalent. The Government has requested ADB to finance \$580,000 equivalent, covering the entire foreign exchange cost and \$92,400 equivalent of the local currency costs. The Government will finance the balance of the local currency cost. The Government has been advised that approval of this TA does not commit ADB to finance any ensuing project. The TA will be financed by ADB on a grant basis from the Japan Special Fund, funded by the Government of Japan. Detailed cost estimates are in Appendix 2.

D. Implementation Arrangements

19. The TA will be carried out by a firm of international consultants to be engaged in accordance with ADB's *Guidelines on the Use of Consultants*. The TA will require about 16 person-months of international consulting services in the fields of civil engineering for small maritime structures (small ports, jetties, ramps, and landing sites) and aids to navigation, low traffic shipping services, small craft safety policies, SAR policy and execution, radio and telecommunications, management of low-traffic port facilities, management of maritime and river routes, poverty analysis, microscale project development, organizational and maritime transport policy analysis, management, and low-traffic maritime transport policy analysis, economic and financial analyses, social and environmental analyses, human resources management, and a

profound knowledge of the legal and administrative framework of PNG. The detailed terms of reference for consulting services are in Appendix 3.

20. DOTCA will be the Executing Agency for the TA with the affected provincial administrations as Implementing Agencies. DOTCA will coordinate closely with the Department of National Planning and Monitoring to ensure effective liaison, data gathering, and discussion during implementation. The Small Boat Advisory Committee will be the steering committee for the TA. DOTCA will appoint a qualified project manager to work with the consultants and to provide coordination between the Government, its agencies, the provincial administrations, communities, users, and the consultants.

21. The TA will be carried out over six months commencing in February 2001 and ending in July 2001. The consultants will submit an inception report, a draft final report, and a final report. The consultants will organize a minimum of two tripartite meetings including the Government, the consultant, and ADB to consider the reports. The consultants will also convene coordination meetings among external funding agencies and the TA in connection with the scheduled two tripartite meetings.

IV. THE PRESIDENT'S DECISION

22. 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 Papua New Guinea in an amount not exceeding the equivalent of \$580,000 for the purpose of preparing the Community Water-Transport Project, and hereby reports such action to the Board.

TECHNICAL ASSISTANCE FRAMEWORK

| Design Summary | Performance Targets | Monitoring Mechanism | Assumptions/Risks |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>A. Goals Reduce transport-related constraint to improvement of standard of living and poverty reduction in remote maritime and riverside communities</p> | <ul style="list-style-type: none"> (i) Quantified social and poverty-reducing impact of investments improving transport conditions (ii) Reduced transport costs (iii) Increased frequency of transport services (iv) Improved safety of transport services (v) Improved viability of associated poverty-reducing projects suffering from transport-related constraints | <p>Technical assistance (TA) performance report Reports by the Small Craft Advisory Committee Reports on search and rescue operations Provincial social and economic indicators</p> | <p>Private sector reaction to developed strategy Government long-term commitment to developed strategy Financing of associated small-scale poverty reduction projects Coordination between provincial and national governments</p> |
| <p>B. Purpose Improve low-traffic maritime transport conditions and safety, and induce access of the remote maritime communities to employment and marketing opportunities in the mainstream markets of Papua New Guinea</p> | <p>Preparation of an agreed-upon investment program, strategy, and policy framework and action plan for improving safety and viability of remote water-route transport</p> | <p>TA reports Project processing and approval</p> | <p>Consultative collaboration between consultant and national and provincial governments</p> |
| <p>C. Outputs A feasibility study for an investment program for installation of minor port and maritime infrastructure and identification of policy and institutional frameworks to ensure sustainability of the priority investments strategy</p> | <p>International standard feasibility study with a strong focus on poverty</p> | <p>Asian Development Bank's (ADB) review reports TA reports</p> | <p>Timely mobilization of consultant in accordance with ADB's procurement guidelines Efficient consultation process with all stakeholders</p> |
| <p>D. Inputs Technical assistance for preparation of the feasibility study</p> | <p>Award of consulting services contract of a total estimated value of \$580,000 to prepare investment proposals, transport safety and viability improving policy, strategy, and action plan for the aviation sector by 31 July 2001</p> | <p>Time- and quality-bound delivery of consulting services, outputs, and reports</p> | <p>Effective consultant selection process Effective consultation with stakeholders</p> |

(Reference in text: page 4, para. 15)

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Appendix 1

COST ESTIMATES AND FINANCING PLAN
(**\$**)

| Item | Foreign Exchange | Local Currency | Total Cost |
|--------------------------------------------------------|---------------------|-------------------|----------------|
| A. Asian Development Bank Financing^a | | | |
| 1. Consultants | | | |
| a. Remuneration | 320,000 | 0 | 320,000 |
| b. Per Diem | 57,600 | 0 | 57,600 |
| c. International Travel | 30,000 | 0 | 30,000 |
| d. Local Air Travel | 0 | 40,000 | 40,000 |
| 2. Miscellaneous | | | |
| a. Communications | 0 | 3,000 | 3,000 |
| b. Report Preparation | 0 | 6,000 | 6,000 |
| c. Office Supplies | 0 | 2,000 | 2,000 |
| d. Local Vehicle Transport | | 8,000 | 8,000 |
| e. Workshops | 20,000 | 25,000 | 45,000 |
| 3. Government Participant in Contract Negotiations | 5,000 | 0 | 5,000 |
| 4. Contingencies | 55,000 | 8,400 | 63,400 |
| Subtotal (A) | 487,600 | 92,400 | 580,000 |
| B. Financed by the Government | | | |
| 1. Office Space and Logistical Support | 0 | 40,000 | 40,000 |
| 2. Office Support | 0 | 20,000 | 20,000 |
| 3. Local Transportation to Remote Locations | 0 | 150,000 | 150,000 |
| 4. Contingencies | 0 | 33,600 | 33,600 |
| Subtotal (B) | 0 | 243,600 | 243,600 |
| Total | 487,600 | 336,000 | 823,600 |

^a Financed from the Japan Special Fund.

Source: Staff estimates.

(Reference in text: page 4, para. 18)

OUTLINE TERMS OF REFERENCE FOR CONSULTING SERVICES

1. The detailed consultants' work will include, but will not necessarily be limited to, the following tasks:

A. Feasibility Study

- (i) Review documentation on national, provincial, and local investments proposals, policy, and plans in the water transport subsector.
- (ii) Review the demand for all proposed investments assessing traffic movements and needs of coastal and river-based communities, obtaining data on the patterns of small craft traffic, commerce, microtrading, and delivery of social services. Assess the use of new technologies, know-how, and best practices for improving of service delivery.
- (iii) Review the impact of transportation and freight prices on remote maritime communities, and of maritime infrastructure and services on poverty. Identify constraints producing the identified trends in prices and preventing regular transport services.
- (iv) Review the demand for maritime and inland waterway transport, assessing the nature and volume of traffic as well as estimating expansion, given the additional services.
- (v) Review the demand for maritime and inland waterway transport by assessing data from private service operators, and examine the reasons for the current limitations of their services.
- (vi) Carry out willingness-to-pay surveys, collect and analyze data on market fares, and compare these in light of the expansion of economic and financial service supply prices.
- (vii) Identify all recurrent cost implications the shipping and water transport infrastructure proposals, and operation and maintenance of the proposals, national and provincial government staffing, enforcing small-craft registration and policing; and assess the governments absorptive capacity for the new functions.
- (viii) Identify cost recovery possibilities, and assess the capability and willingness of the government to subsidize services to and from low-volume destinations in line with the Asian Development Bank's (ADB) criteria on subsidies. Participate in ADB-led policy dialogue on the issue of possible subsidies based on interim and final findings.
- (ix) Validate and update the proposals for water transport investments, assessing their viability and feasibility; update design documents reviewing the technical solutions and specifications, the proposed locations, and land acquisition issues.
- (x) Review the safety concerns of all remote communities, determining the history of small craft incidents; and develop proposals for improving the safety of water transport.

(Reference in text: page 5, para. 19)

- (xi) Determine routes where safety and economic inefficiency problems occur, their usage and growth patterns, and alternative more reliable networks; describe the proposed alternative technical solution and related resource requirements, determining costs, technical and economic feasibility; and prepare an economic evaluation of the proposed solutions.
- (xii) Determine the history of heavy weather and extreme wave attack along the foreshores for the last 10 years, the locations with protection for vessels during such weather, population and produce distribution, possible levels of imports and exports in abutting areas, vessel traffic, problems inherent in the present systems of moving of passengers and cargo.
- (xiii) Undertake a survey of the possible safe havens along the foreshore, determining locations of proposed wharves, jetties, or pontoon sites, shoal areas in the approaches to the safe havens where navigation aids are needed; propose landing facilities to suit each location, and prepare an economic evaluation of developing a network of safe haven landing sites.
- (xiv) Prepare options for investment programs that improve access of remote maritime and river-based communities to mainstream markets, reviewing landing facilities, navigation aids, credit schemes, programs to improve the safety of operating small craft, shipping services, and programs to reduce poverty in these communities.
- (xv) Identify issues and problems experienced by small craft operators traveling in open waters over large distances under risk of missing the target landfall; propose a network or system that allows operators to arrive safely at their destinations and possible protected locations that facilitate the exchange of passengers and cargo to and from small craft, dinghies, and vessels, and larger vessels delivering cargo from the abutting region.
- (xvi) Prepare a detailed and technical program for addressing the low-traffic and remote maritime and river route transport issue, and outline an investment program prioritizing all proposed facilities appropriate for external financing. This will identify policy, institutional, management, maintenance, and sustainable operation issues of the proposed facilities, including cost recovery mechanisms.
- (xvii) Prepare technical specifications including terms of reference of the proposed prioritized program, civil works, equipment and consulting services required, and establish the contract packages for civil works, equipment, and consulting services, under ADB's *Guidelines for Procurement*.
- (xviii) Identify an appropriate 10-year recurrent maintenance program, including a recommendation for funding the maintenance of the proposed facilities.
- (xix) Prepare delivery mechanisms for the maintenance program addressing the organizational, technical, financial, and human resources aspects and coordination. This will involve the Department of Transport and Civil Aviation (DOTCA), the provincial administrators, and other relevant agencies, as appropriate.

- (xx) Assist in preparing of a land acquisition program, as required, in consultation with DOTCA, the Department of Lands, and the provincial administrations; and prepare a specific land acquisition action plan for the proposed investment program.
- (xxi) Investigate the costs of locally available and imported materials for construction purposes, estimate construction, installation, and maintenance costs of the proposed facilities, and disaggregate cost estimates into foreign and local components, taxes and customs duties, equipment depreciation, spare parts, materials, labor, and overhead, etc. as well as by general items, civil works, electric works, installation, and equipment.
- (xxii) Undertake project feasibility studies for the proposed investments for the proposed facilities and programs. The studies will include an economic and financial evaluation, in accordance with ADB's *Guidelines for Economic Analysis of Projects*, evaluation of environmental and social costs and benefits for each project over the intended life of the investment, preparation of the financial and economic net present values of the proposals and other feasibility indicators, sensitivity tests for major parameters such as costs, demand, and benefits. Financial and economic values will be calculated for all parameters.
- (xxiii) Conduct an initial social assessment for the feasibility study in accordance with ADB's relevant guidelines (a) identifying the users and project beneficiaries, their socioeconomic profiles, needs, and demands, livelihood, income, education, use of maritime transport, and expenses incurred; (b) identifying alternative transportation and facilities; (c) assessing the needs of the client groups for navigation aids in relation to their other needs (e.g., hospitals, schools, livelihood opportunities, etc.); (d) assessing the activities of the client group that complement the project proposal (e.g., fishing, access issues) and problems with the current maritime transportation conditions; and (e) determining the preferred improvements, and the willingness of the user subgroups to pay the relevant fees as suggested under the cost recovery proposal, and (f) prepare a detailed social analysis in accordance with ADB's *Guidelines for Incorporation of Social Dimensions in Bank Operations*, in full consultation with the relevant agencies of the national and provincial governments, nongovernment agencies, and individuals; and incorporate their views in the feasibility study.
- (xxiv) Prepare specific project-related poverty analysis in accordance with ADB's policy on poverty reduction and related guidelines, prioritize and quantify poverty-reducing project benefits, recommend management structures to target poverty reduction and its components, and identify associated programs for poverty reduction. This will identify benefits accruing to the poor and (a) identify project beneficiaries by location and income group, (b) identify institutional mechanisms to target particularly poor beneficiaries, and (c) incorporate specific features or measures into the proposed project design to maximize poverty reduction under the project. Consultative/participatory approaches will ensure the participation of the poor in project design.

- (xxv) Identify and prepare small-scale projects that will maximize the benefits of the proposed project to the poor as separate project profiles under the criteria of the Japan Fund for Poverty Reduction.
- (xxvi) Assess the overall environmental impacts of the proposed Project—direct and indirect, temporary and permanent—during construction and operation, in accordance with ADB's *Environmental Guidelines for Selected Infrastructure Projects*, and ADB's *Environmental Assessment Requirements* (March 1998). Emphasize sensitive areas, particularly mangroves, coral reefs, and the estuary ecosystem; provide mitigation measures including their costs. Based on the assessment, prepare an initial environmental examination (IEE) and summary IEE (SIEE)—following ADB's IEE/SIEE format—and an environmental impact assessment (EIA), if warranted.
- (xxvii) Determine a program of user, landowners, beneficiary, and affected community consultations, develop a consultation mechanism, and assist DOTCA and the provincial administration execute an effective beneficiary consultation and public awareness program.
- (xxviii) Prepare management and administration arrangements for effective project implementation including a project management unit (PMU), schedules, roles and tasks for agencies and persons involved, action programs for establishing project implementation resources including counterpart resources; and assess the capacity of DOTCA and the provincial administrations for project management and contract administration for the investment program.
- (xxix) Identify appropriate implementation arrangements for the proposed program, including a PMU and the steering committee, and prepare for, among other things, financial management of the project and coordination between DOTCA, provincial administrations, Department of Treasury and Finance, and Department of Lands.
- (xxx) Review and identify cofinancing arrangements for the program.
- (xxxi) Analyze, in detail, institutional options for improving remote and small craft safety including dissemination of information, registry and reporting, early warning, search and rescue operations considering economic efficiency, sustainability, financial and technical viability, and legal implications.
- (xxxii) Prepare performance indicators for the project and improvement of water transport safety, and assign benchmark and target values to be achieved under the proposed programs.
- (xxxiii) Liaise with all national institutions for providing training under the proposed project, and recommend appropriate training programs to enhance improvement of maritime safety, project implementation, management of the proposed maintenance program, and sustainability of the proposed long-term institutionalization of the proposals; and develop a formal staff training program based on the needs and the performance requirements, exploring opportunities with any natural partners and organizations.

(xxxiv) Prepare a public awareness program for educating the public on the safety of waterway transport.

B. Reports

2. The consultants will submit a brief inception report in English to the Government (14 copies) and ADB (3 copies) within four weeks of the commencement of services. The report will give the initial status of each item under the terms of reference and a program and milestone targets for the remainder of the project. A tripartite meeting involving the Government, the consultant, and ADB will be convened to consider the report. A concise interim report will be prepared laying out initial findings arising from the situation, assessment of services currently provided, demand analysis, implications for cost recovery and possible subsidies. The report will be the basis for possible policy dialogue on subsidies between ADB and the Government. A draft final report will be submitted one month prior to completion of the services. It will include environmental and social examination in accordance with applicable ADB guidelines, the detailed design work, and the additional project profiles for the poor to benefit from the project. After the Government and ADB have reviewed the draft final report, they will meet in Papua New Guinea with the consultants to assess the consultants' findings and recommendations. The consultants will submit a final report, taking into account comments from the Government and ADB, within one month of the receipt of such comments.