

**REPORT AND RECOMMENDATION
OF THE
PRESIDENT
TO THE
BOARD OF DIRECTORS
ON A
PROPOSED LOAN
AND TECHNICAL ASSISTANCE GRANT
TO
TUVALU
FOR THE
MARITIME TRAINING PROJECT**

September 2002

CURRENCY EQUIVALENTS

(as of 15 August 2002)

Currency Unit	–	Australian dollar (A\$)
A\$1.00	=	US\$0.5636
US\$1.00	=	A\$1.774

ABBREVIATIONS

ADB	–	Asian Development Bank
EIRR	–	economic internal rate of return
FTF	–	Falekaupule Trust Fund
GDP	–	gross domestic product
HIV/AIDS	–	human immunodeficiency virus/acquired immune deficiency syndrome
IEE	–	initial environmental examination
IMO	–	International Maritime Organization
MD	–	Marine Department
MES	–	Ministry of Education and Sports
PMU	–	project management unit
SPC	–	Secretariat of the Pacific Community
STCW 95	–	Convention on Standards of Training, Certification, and Watchkeeping of 1995
TA	–	technical assistance
TMTI	–	Tuvalu Maritime Training Institute
TOSU	–	Tuvalu Overseas Seamen's Union

GLOSSARY

Falekaupule	–	Local government, district
Ratings	–	Rating is essentially a naval term referring to noncommissioned sailors; in general usage it refers to the crew of a vessel, other than officers.
White List	–	A term of no legal standing that indicates if a nation is deemed to be in compliance with the requirements of STCW 95.

NOTE

The fiscal year of the Government of Tuvalu and its agencies ends on 31 December.

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- B. Tuvalu Maritime Training Institute Educational Issues
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LOAN AND PROJECT SUMMARY

Borrower	Tuvalu
Classification	Poverty classification: Poverty intervention Thematic: Human development
Environment Assessment	Category B. An initial environmental examination was undertaken and the summary is a core appendix.
Project Description	Infrastructure and equipment to upgrade the Tuvalu Maritime Training Institute (TMTI)
Rationale	The social and economic welfare of the outer islands of Tuvalu is critically dependent on the overseas remittances of Tuvaluan seafarers, who are trained by TMTI. Upgrading of TMTI is essential to meet the current International Maritime Organization (IMO) training requirements and therefore ensure the continued employment of Tuvaluan seafarers.
Objectives	The objective is to upgrade the structures and training facilities of TMTI, to meet IMO training requirements and thereby remain on the IMO White List, ensuring that Tuvaluan seafarers will continue to be employed overseas. This objective will contribute significantly to the goal of poverty reduction in the outer islands of Tuvalu and improve the education and skills of Tuvaluan seafarers. The scope of the Project includes rehabilitating and extending training facilities at TMTI; upgrading the wharf facilities; improving and increasing staff accommodation; improving water, power, and communication services; procuring specialized training equipment; and extending shipping service offices.
Cost Estimates	The total project base cost is estimated at US\$2.04 million. The total estimated project cost, including physical and price contingencies and interest, is US\$2.30 million.
Financing Plan	Asian Development Bank: US\$1,845,000 Government direct financial contribution: US\$319,000 Government in-kind contribution: US\$139,000
Loan Amount and Terms	The loan amount will be equivalent to SDR 1,394,000 from the ADB's Special Funds resources, to fund approximately 80% of the cost of the Project, covering approximately 88% of the foreign exchange costs. The loan will have a maturity of 32 years, including a grace period of 8 years, and an interest charge of 1% per annum during the grace period and 1.5% per annum thereafter. The borrower will be Tuvalu.
Period of Utilization	Until 31 August 2005.

Estimated Project Completion Date	28 February 2005
Executing Agency	Ministry of Education and Sports
Implementation Arrangements	A project steering committee will comprise relevant government agencies, including the Ministry of Works, Communication, and Transport for technical advice. An independent project management unit will receive specific assistance from the loan to provide advice on tendering and contract supervision. TMTI will manage the assets on Amatuku Island, and the Shipping Services will manage the offices on Fongafale.
Procurement	The main contract package, valued at approximately US\$1.7 million, will be offered under international competitive bidding procedures. Materials and equipment valued below US\$50,000 will be procured under direct purchase procedures.
Consulting Services	Approximately 7 person-months of international consulting services will be required for the project management unit and are estimated at US\$157,000.
Project Benefits and Beneficiaries	Upgrading of the TMTI facilities will ensure that future maritime training meets IMO guidelines and that Tuvaluan seafarers will therefore still have fair access to overseas employment. This will allow the continued flow of overseas remittances, upon which the social and economic welfare of the outer islands of Tuvalu depends. Specific beneficiaries of the Project include TMTI staff, trainees, Tuvaluan seafarers, shipping service staff, and outer island communities. More than 60% of the population of Tuvalu, many of whom are economically disadvantaged, are expected to receive some benefit from the Project.
Risks and Assumptions	The main risk associated with the Project concerns human immunodeficiency virus/acquired immune deficiency syndrome, which is spreading rapidly in the Pacific. However, several development organizations in Tuvalu already address this issue adequately. The Project's main assumption is that the Government will ensure competent management of TMTI at all times.
Technical Assistance	Organizational Strengthening and Curriculum and Program Development at TMTI; total project cost of US\$343,000, of which US\$291,000 is financed from the Japan Special Fund, funded by the Government of Japan.

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan to Tuvalu for the Maritime Training Project. The report also describes proposed technical assistance (TA) for organizational strengthening, and curriculum and program development at Tuvalu Maritime Training Institute (TMTI), and if the Board approves the proposed loan, I, acting under the authority delegated to me by the Board, will approve the TA. (The project framework is in Appendix 1).

II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

A. Performance Indicators and Analysis

2. Tuvalu is composed of nine low-lying coral atolls scattered in the Central Pacific Ocean. It has a land area of 26 square kilometers (km²) and an exclusive economic zone of 900,000 km² of ocean. The total resident population is about 10,340. The capital island, Fongafale in the Funafuti atoll, has an area of only 2.8 km², but accounts for more than half of the population and two-thirds of the gross domestic product (GDP) of the country.

3. Seafarers trained at TMTI are by far the most important source of remittances to the outer islands. These remittances comprise the major part of household income, financing house construction, school fees, business investment, and consumption. They are also a valuable source of foreign exchange. About 1,000 TMTI graduates are registered for employment as seafarers, of which 470 currently are working overseas. Annual overseas earnings of seafarers in the last 2 years are in the range A\$5 million-8 million. Most of this is remitted directly to bank accounts in Tuvalu, while some of it is spent overseas or used to pay directly for imports. The remittances and imports to Tuvalu by seafarers are significant compared with annual GDP of about A\$18 million. Moreover, seafarer income is distributed to all the outer islands. In some islands, overseas remittances comprise as much as 50–60% of the family income, especially in areas dominated by subsistence activity.

4. TMTI was established in 1979 as the Tuvalu Maritime School, situated on Amatuku islet, a self-contained islet immediately northwest of Fongafale. The institute provides training for young Tuvaluan men to enable them to seek employment aboard foreign vessels. Approximately 43% of the male population of working age in Tuvalu are employed as seafarers (the extremely limited resource base of Tuvalu means that job and business opportunities are minimal). TMTI offers three 12-month pre-sea and shipboard programs yearly, each taking 20 new entrants. For trainees to continue to be qualified to work on international ships, the institute must conform to the standards as defined by the International Maritime Organization (IMO), specifically the requirements stipulated by the International Convention on Standards of Training, Certification, and Watchkeeping as amended in 1995 (STCW 95). These requirements also apply to the free refresher and upgrade training offered by TMTI to the 1,000 registered working seafarers, who must complete specific safety training in order to continue their employment on foreign vessels.

5. TMTI is at a critical juncture ? it does not have the requisite training facilities to meet all current IMO training requirements, and the existing infrastructure and supply of basic services to residents on Amatuku are inadequate. Tuvalu must demonstrate to IMO and overseas crewing agencies that TMTI is addressing the infrastructure and training deficiencies. The planned upgrading and infrastructure investment must also be implemented as soon as possible, to avoid jeopardizing the future employment of Tuvaluan seafarers. If TMTI cannot meet IMO

training requirements, then Tuvaluan seafarers cannot work, and the significant revenue flows to the outer islands would terminate. Recruitment of the current chief executive officer of TMTI and the corporatization of TMTI in July 2000 were major steps toward professional management of the institute using sound business principles. These steps were prerequisites for the physical upgrading of TMTI and the associated TA in capacity building.

B. Analysis of Key Problems and Opportunities

1. Problems and Opportunities

6. STCW 95 stipulates the standards that every country must ensure its training institutions and maritime administration meet, in order that its nationals may work on foreign-going vessels and that vessels sailing international waters under its flag may continue to operate. The purpose of the convention is to ensure that all seafarers are educated and trained to at least a minimum standard and have sufficient experience to perform their duties competently, and thus minimize risk to life, property, and the marine environment.

7. Tuvalu gained White List status in November 2000 after compilation of a submission that documented the policies and procedures established to ensure that required standards as outlined were met. This initial assessment by IMO was largely based on information supplied by Tuvalu itself, and was essentially a desktop audit exercise. However, attaining White List status was just the beginning of the work necessary to ensure the continued employment of Tuvalu seafarers. These standards and procedures specified in the original White List submission to IMO must be adhered to, and the Marine Department (MD) must be able to demonstrate that working systems are in place to ensure compliance. MD, as the maritime administration of Tuvalu, is responsible for compliance.

8. To maintain White List status, Tuvalu must submit to an external audit process at intervals no longer than 5 years. This external audit is intended to identify the extent of compliance, determine the effectiveness of quality systems, provide opportunities to improve quality control, and establish an effective and efficient audit system. The performance and quality systems of MD in roles other than ensuring the quality and conduct of training at TMTI is also subject to this external audit process, including search and rescue, port state control inspections, flag state control inspections, and the certification of seafarers.

9. However, gaining the initial place on the White List may well prove to be the easiest part of the process for many of the 72 nations currently holding that status. The Regional Maritime Programme of the Secretariat of the Pacific Community (SPC), is of the opinion that, of the 10 Pacific Island nations currently on the White List, 5 would be at risk of losing their status in the event of external audit by an IMO approved agent? among them Tuvalu. The common issue appears to be development of the required systems to assure the certification procedures? databases, establishment of audit procedures and audit history, and general documentation of processes. Informal comment indicates that a commonality among states at risk is lack of separation of the maritime administration function from that of a larger and more diverse government department. In those Pacific island countries where a separate entity is able to focus clearly on the roles and functions required by STCW 95 (such as Tonga), authorities appear better equipped to meet the obligations imposed.

10. As of 30 September 2001, 1,036 seafarers retained active membership with the Tuvalu Overseas Seamen's Union (TOSU). On that date, 470 individuals were at sea according to the

employment records of the recruiting agencies based in Tuvalu. These agencies estimate that the seafarers spend approximately 60% of their working life on the vessels, indicating that the current employment pool on that date should be estimated at 783 to allow for those resting between contracts and in transit to join vessels. This leaves a total of 253 absent from theoretical employment status, a figure that approximately corresponds with the total of those seafarers who have been subject to suspension from employment for alcohol or disciplinary reasons. Seafarer employment varies from year to year, reflected in the remittances to Tuvalu.

11. The global market for employment at sea presently favors the employment of deck and engineering officers, as opposed to those seafarers with basic qualifications as deck or engine room ratings¹ currently graduating from TMTI, and the employment outlook for the years through to 2010 presents no predicted change in outlook within an increasingly competitive market. The typical classifications of Tuvaluan seafarers include able seaman, ordinary seaman, motorman (the latter three comprising the majority), pumpman, bosun, deck fitter, engine fitter, wiper, cook, steward, and messman.

12. The historical employment link for Tuvalu seafarers is with German shipping companies, and this link has been consistent from the inception of the Tuvalu Maritime School in 1979 until today. The strength, stamina, and natural ability of seafarers from Tuvalu have greatly assisted their employment opportunities in the past. In the competitive market that prevails now, less value is placed on these characteristics, and factors such as the ability to conclude amicable collective employment agreements with TOSU are viewed favorably.

13. Two main factors present a risk to the continuation of current employment figures, and as barriers to employment growth: (i) a growing propensity for incidents of alcohol abuse and consequent violence; and (ii) a marked drop in the standard of oral and written English, noted anecdotally by employers, agents, and TMTI staff. Problems with English and alcohol will pose a significant barrier to widening the pool of potential employers, in particular the operators of passenger cruise vessels, which have been identified as having future employment potential. One of the German employers has already taken the step of declaring their vessels free of alcohol in an effort to address the problem. However, the employment agents all noted the positive changes related to these problems achieved in recent times. If the problems can be kept under control, the present agents see a good future for the continued employment of Tuvaluan seafarers.

14. The weak organizational setup of MD, with its cramped office space and poor staffing, prevents efficient administration of cargo and domestic passenger services. Similarly affected is MD's involvement in training of TMTI students onboard the *Nivaga II*, one of the vessels under MD's responsibility. Deficiencies in MD functions could result in Tuvalu being struck from the White List, which would prevent Tuvaluan seafarers from working overseas; the same effect as noted for TMTI. Tuvalu Shipping Services, a unit under MD, therefore also needs attention in the near term, to ensure that weaknesses in this area do not compromise the efforts at TMTI. Assistance to MD within both the Project and the associated TA is therefore incorporated. Details on Tuvalu Shipping Services are provided in Supplementary Appendix A.

15. In discussions with the Government, there is general agreement that cost recovery for TMTI's training services should, to the extent possible, be recovered from users. It will be important for the Government to explore alternative mechanisms for accomplishing this.

¹ Rating is essentially a naval term referring to noncommissioned sailors; in general usage it refers to the crew of a vessel, other than officers.

16. Infections with human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) are increasing rapidly in the Pacific. High-risk groups include seafarers and, for a country like Tuvalu with such a small population, the consequences can be dire. However, SPC and TOSU have comprehensive HIV/AIDS awareness programs under implementation, and other development agencies are considering additional assistance. With this level of support, the HIV/AIDS issue is being appropriately addressed and any additional assistance would probably exceed the absorptive capacity of the targeted audience.

2. Lessons Learned

17. There has been no formal evaluation of projects to strengthen training institutes for seafarers in the Pacific region. The Pacific region has 7 maritime training institutes; their curricula and specialization are guided by the Regional Maritime Programme of SPC. The principles in the SPC strategy have been to avoid competition between the countries and instead focus on comparative advantages. Tuvalu, being by far the smallest country with respect to population, has taken advantage of the positive attributes of its seafarers, such as general fluency in English, pleasant personalities, strong physiques, and, lately, the collective employment agreement with TOSU. However, SPC has repeatedly warned against broadening its curriculum to include officer training, as the costs would be too high and, the human resource base, too small.

18. The Project has taken the SPC strategy into consideration. The proposed upgrade of TMTI and the associated TA in curriculum development, therefore, focus only on training of ratings. The competition from other countries is growing, but the strong and long-standing relationship with the German shipping agencies is likely to continue if the standards are kept up to IMO requirements.

III. THE PROPOSED PROJECT

A. Objectives

19. The main objective of the Project is to ensure that TMTI can continue to provide basic training and more specialized refresher and upgrade training to prospective and current Tuvaluan seafarers, in a manner that meets IMO training standards. This will be achieved by (i) upgrading the infrastructure at TMTI and MD, (ii) providing training equipment, and (iii) providing institutional support to TMTI and MD under the associated TA. By addressing education needs and access to international job opportunities, the Project contributes directly to the goals of more equitable income distribution and poverty reduction, particularly in the outer islands.

B. Components and Outputs

20. The infrastructure upgrade includes (i) a wharf extension and installation of specialized safety-at-sea training equipment, (ii) installation of a fire fighting facility, (iii) increase in the water catchment and storage capacity, (iv) construction of new staff housing, (v) rehabilitation and extension of trainee quarters and training facilities, (vi) installation of a backup solar power system, (vii) renovation of existing staff houses, (viii) installation of improved telecommunication systems, (ix) procurement of specialized training and operational equipment, and (x) extension and improvement of MD offices on Fongafale.

21. The number of qualified seafarers graduating from an increasing number of maritime schools around the world, and the subsequent tightening of IMO standards, highlight the need for TMTI to maintain its comparative advantage. The specialized training equipment proposed and the general upgrade of all facilities on Amatuku are the minimum requirements for a training institute to carry out professional training to IMO standards.

C. Special Features

22. Two important requirements must be considered with respect to the infrastructure upgrade at Amatuku. All buildings should be made to standards that require minimum maintenance and, at the same time, can withstand the harsh environment of tropical sun, seawater spray, and occasional typhoons. Because Amatuku has no groundwater, the water catchment from all buildings should feed into a larger water storage tank system. Both issues will be addressed under the Project.

D. Cost Estimates

23. The total project base cost is estimated at US\$2.04 million. The total estimated project cost, including physical and price contingencies and interest during construction, is US\$2.3 million. The annual allowance for price contingencies over the 3-year implementation period is 2.4% for foreign exchange costs and 2.5% for local currency costs. The physical contingencies vary from 5% to 27.5% for the various items of infrastructure and equipment, based on the degree of uncertainty in estimating their costs. (Table 1 and details in Appendix 2).

Table 1. Estimated Project Costs
(US\$ '000)

Items	Foreign Exchange	Local Currency	Total Cost
A. Civil works			
Preliminary work	324.4	36.0	360.4
Buildings	846.8	75.1	921.9
Structures	202.3	22.5	224.8
Water Tanks	20.5	2.3	22.8
Fittings	103.6	11.5	115.1
B. Equipment and Machinery	207.3	10.9	218.2
C. Supervisory Engineer	161.2	15.8	177.0
Subtotal	1,866.1	174.1	2,040.2
D. Physical Contingency	139.5	15.5	155.0
E. Price Contingencies	71.5	7.9	79.4
F. Interest During Construction	28.0	0.0	28.0
Total	2,105.1	197.5	2,302.6

Source: Asian Development Bank estimates.

E. Financing Plan

24. ADB will fund 80% of the total project costs and the Government will finance the remaining 20%. The Government has requested that the foreign exchange and local currency components of the Project be financed as shown in Table 2.

Table 2: Financing Plan
(US\$ '000)

Source	Foreign Exchange	Local Currency	Total Amount	Percent
Asian Development Bank	1,845	0	1,845	80
Government ^a	241	217	458	20
Total	2,086	217	2,303	100
Percent	91	9	100	

^a Part of the Government's contribution will be in-kind through the provision of machinery.

Source: Asian Development Bank estimates.

25. The Government has requested a loan equivalent to \$1.845 million from ADB's Asian Development Fund to finance 80% of the cost of the Project covering approximately 88% of the foreign exchange cost. The proposed loan will have a maturity of 32 years, including a grace period of 8 years, and interest charge of 1% per annum during the grace period and 1.5% per annum thereafter. The Borrower will be Tuvalu.

F. Implementation Arrangements

1. Project Management

26. The Ministry of Education and Sports (MES) will be the Executing Agency. MES has not been involved with ADB loan projects previously, but TMTI has been the recipient of various aid

projects over the last 3–4 years. Staff at TMTI will be directly involved in planning and implementing the Project, since the construction on Amatuku will require close coordination with TMTI's routine training and educational activities. Similarly, staff at MD will be involved in the planning and coordination of office extension activities proposed for the Project. The organizational structure of TMTI and educational issues are described in Supplementary Appendix B.

27. TMTI staff are fully capable of coordinating the construction activities on Amatuku; however, the actual project implementation will involve construction by professional builders experienced in modular construction in tropical areas. An international consultant will be engaged to assist with construction supervision and all tender procedures.

28. A project management unit (PMU) will be set up within MES. The PMU will be headed by the assistant secretary of MES and assisted by the superintendent of TMTI, the director of MD, and a qualified engineer from the Public Works Department. The supervisory consulting engineer will work within the PMU. The PMU will manage and oversee Project implementation according to the implementation schedule, including recruitment and supervision of consultants, procurement of goods and services, contract management, project planning, disbursement, records, and reporting. TMTI will manage the assets on Amatuku as they come on stream, and the Shipping Services and MD will manage the offices on Fongafale. Indicative maintenance costs, under various scenarios, are provided in Supplementary Appendix C.

29. A project steering committee, comprising involved government agencies with relevant technical expertise, including the Public Works Department and MD, will be established and will meet quarterly to discuss and guide project implementation and review the planning process.

2. Period of Implementation

30. The Project will be implemented over 28 months from November 2002 to February 2005, with tendering and review of proposals occurring on or about December 2002 (detailed designs in Supplementary Appendix D). The supervisory engineer is expected to assure a phased construction process, with the most critical training facilities completed first, while reducing the pressure of construction crews on island resources and potential disruption to routine educational activities on Amatuku. The implementation schedule in Appendix 3.

3. Procurement

31. All procurement financed by the loan will be in accordance with ADB's *Guidelines for Procurement*. Civil works comprise most of the loan and will be tendered in one package under international competitive bidding procedures. Equipment and material valued below US\$50,000 will be procured under direct purchase procedures. The contract packages are in Appendix 4.

4. Consulting Services

32. An individual consultant will be engaged for approximately 7 person-months. The consulting engineer will be responsible for prequalification and evaluation of tenders, and in particular, assist with the tendering process and construction supervision. The consultant will be part of the PMU. The consultant will be recruited by TMTI in accordance with ADB's *Guidelines on the Use of Consultants*. The terms of reference are in Appendix 5.

5. Disbursement Arrangements

33. MES will establish an imprest account at a commercial bank acceptable to ADB. The imprest account will be established, managed, replenished, and liquidated in accordance with ADB's *Loan Disbursement Handbook*, as amended. The ceiling of the imprest account will not exceed the equivalent of US\$50,000. ADB's statement of expenditures procedure may be used for reimbursement of expenditures less than US\$50,000 equivalent and for liquidation of advances made from the imprest account.

6. Account, Audit, and Report

34. MES will maintain consistent records and accounts adequate to identify goods and services financed from the proceeds of the loan. MES will (i) maintain separate accounts for the Project; (ii) ensure that accounts and related financial statements are audited annually in accordance with sound auditing principles by independent auditors acceptable to ADB; and (iii) submit to ADB, not later than 6 months after the close of each fiscal year, certified copies of the audited accounts and the report of the auditor. Quarterly reports, detailing implementation progress, achievements in accordance with the indicators in the project framework, disbursement, consulting input, as well as issues pertaining to disbursement projections for the following quarter and any delay in implementation schedule, will be prepared by the PMU and submitted to MES with copies made available to ADB. MES will be the administrative focal point for the loan and will submit brief monthly project progress reports to ADB via fax or E-mail. MES will submit a project completion report to ADB within 3 months after physical completion of the Project.

7. Project Performance Monitoring and Evaluation

35. Benefit monitoring and evaluation will be assessed through the project benefit and monitoring evaluation function of the Island Development Program,² which already collects information on seafarer remittances to the outer islands.

8. Project Reviews

36. An inception mission will be fielded 1 month after the supervisory engineer consultant has invited tenders, and a midterm review will be undertaken at the end of the first year of implementation. A final review will be undertaken at Project completion.

IV. TECHNICAL ASSISTANCE

37. The objective of the TA is to complement the physical infrastructure upgrade of TMTI by augmenting TMTI's technical capability so that it can meet the training standards and requirements of STCW 95. The TA will provide advice and assistance on the continuous improvement of teaching resources and techniques, student learning resources, and enhancement of employment outcomes from existing programs; maximize the training opportunities available through the *Nivaga II* and other vessels; as well as develop new programs or integrate existing programs, as necessary. It is also directed at implementation of international ship management and planned maintenance procedures of the vessels of the Shipping Services, along with a focus on competency-based assessment training with TMTI.

² ADB. 1999. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to Tuvalu for the Island Development Program*. Manila.

38. An international consulting firm, maritime institute, or individual consultants will be contracted to provide approximately 11 person-months of international consulting services, on a staggered basis over 2 years, in the following fields (i) management and organization (3 person-months), (ii) maritime education (3 person-months), (iii) technical subject matter (2 person-months), and (iv) maritime engineering (3 person-months). Consulting services will be recruited under the quality and cost-based selection method in accordance with ADB's *Guidelines on the Use of Consultants*. The simplified technical proposal procedure will apply.

39. The total cost of the TA is estimated at US\$343,000 equivalent, of which US\$291,000 is the foreign exchange cost and US\$52,000 equivalent is the local currency cost. The Government has requested ADB to finance, on a grant basis, a total of US\$291,000 to cover the entire foreign exchange cost. The foreign exchange costs of the TA cover consultants' remuneration, per diem, international and local travel, report production, training materials, communication, and contingencies. The Government will provide the remaining US\$52,000 equivalent in local currency by providing counterpart staff, office facilities, and local counterpart travel. ADB will finance the TA on a grant basis from the Japan Special Fund, funded by the Government of Japan. The TA cost estimates are in Appendix 6.

40. While MES will be the Executing Agency of the TA, the day-to-day implementation responsibilities will be vested with the superintendent of TMTI. TMTI will also provide counterpart staff to the consultants. The TA will be implemented over a period of 2 years commencing November 2002, and with a closing date of December 2005. The TA will provide a front-loaded input of targeted assistance in the first year to ensure effective and compliant delivery of STCW 95 survival and fire-fighting training by TMTI, implementation of international ship management, planned maintenance procedures of the vessels of the Shipping Services, competency-based assessment training with TMTI staff, and maximization of training opportunities presented by the availability of the *Nivaga II*. Each of the annual inputs will commence with a meeting of the consultants and the TMTI board validating an annual implementation plan formulated on a current needs assessment for TMTI against the scope and objectives of the TA.

41. The consultants will be required to submit assessment reports following each input, as well as a brief outline of the possible needs to be addressed during their assignments. Upon completion of the consultancy for each specific subject area, the consultant concerned will produce a final report with clear recommendations on how to ensure sustainability and continued accreditation to the IMO White List.

42. The superintendent of TMTI will provide ADB with quarterly assessments, reporting on implementation progress, issues that will require any variation from the specified inputs, as well as validation of the indicators specified in the project framework.

V. PROJECT BENEFITS, IMPACTS, AND RISKS

A. Benefits

1. General

43. The main benefit from the Project is that it will allow TMTI to continue to be an accredited maritime training institution maintaining its White List status. Other benefits from the Project are increased earnings from Tuvaluan international seafarers that will flow into the country. In this case, the with-project situation is the continuing operation of TMTI, with an

increase in the number of trainees that graduate each year and the provision of upgrading and revalidation courses to the pool of active seafarers. The without-project situation assumes that TMTI loses its White List status, is no longer an accredited maritime training institute, and has to close down. The Government would then be faced with having to send its young men to a comparable training institute overseas. Upgrading and revalidation short courses would also have to be conducted overseas. Lack of English proficiency would likely reduce the intake of Tuvaluans at an overseas training institute and the pool of trained seafarers would continue to decrease over time as individuals retire, with a consequent reduction in the amount of their earnings remitted back to Tuvalu.

2. Institutional

44. Currently, TMTI conducts three classes of maritime training:

- (i) 1-year residential basic training course for new entrants before employment at sea (TMTI takes in 60 trainees per year in three intakes of 20 and, normally, 50 complete the course and graduate; 4 months of the time is spent undergoing sea training on the *Nivaga II*);
- (ii) upgrade courses of 3 weeks duration for basic fire-fighting, safety, and sea survival training (this course is normally provided once during the career of a seafarer, usually within the first 2–3 years of employment; the upgrade allows the seafarers to move up the pay scale and receive an immediate increase in pay); and
- (iii) revalidation and refresher course for seafarers (each seafarer must revalidate the certificate every 5 years to maintain his employment status under STCW 95; the course normally lasts 1 week and involves fire-fighting, sea safety, and tanker skills, with the objective of refreshing the seafarers' skills, allowing for changes in technology and competency requirements. On average, around 150–200 seafarers require revalidation per year).

a. The With-Project Situation

45. TMTI is upgraded and maintains its White List status. The improved facilities allow an increase in the number of new entrants to a level where 70 graduate each year from an intake of up to 90 trainees, compared with the present situation where 50 graduate each year from an intake of 60. Upgrading and revalidation courses are conducted as required and the existing pool of active seafarers have the opportunity to attend the upgrading and revalidating courses at TMTI.

46. The average working life for a Tuvaluan seafarer is assumed to be 15 years, which represents a loss from the pool of seafarers of 7% per year. The output of 70 new seafarers per year is sufficient to maintain the pool of trained and active seafarers at around the current level of 1,000.

47. The operating costs of TMTI are increased to reflect the required maintenance of the existing and new infrastructure, with replacement of capital items and equipment as needed.

b. The Without-Project Situation

48. TMTI loses its White List status within 2 years and is forced to close down. The Government, recognizing the importance of the seafarers' employment to the country, continues to fund a reduced number of new trainees to receive their training overseas at an institute that has the capacity to undertake such training. Some trainees may also fund themselves. However, because of the more difficult logistics in organizing the overseas training, and the stricter entrance requirements for the overseas institutions (such as the level of English ability), the number of trainees who successfully complete the training is reduced to only half of the current output and only 25 new seafarers graduate each year. This results in a gradual reduction in the pool of trained and active seafarers, based on the same attrition rate of 7% per year. Consequently, the number of employed seafarers is reduced and remittance income diminishes accordingly over time.

49. All upgrading and revalidation courses would have to be conducted overseas as well, possibly contributing to a greater attrition rate, as seafarers decide that continuing employment as a seafarer is too difficult. Some trainees who go overseas may lose their links with Tuvalu and emigrate permanently, reducing the amount of income remitted home to Tuvalu. The net result is that the level of income that Tuvalu receives from its seafarers is severely reduced as the pool of active workers decreases over time.

B. Social and Environmental Impacts

1. Social Issues

50. The social context on Amatuku is quite straightforward, comprising 12 TMTI professional and support staff (25 individuals, when family members are included), and no more than 40 trainees at any one time. The island is about 1 kilometer long by 200 meters wide (at the widest point). Conditions are probably more favorable than most other locations throughout Tuvalu, with independent (although sometimes unreliable) power supply, telephone communication, daily access to the facilities on Fongafale, and a pleasant well-vegetated setting. Water is limited at times. The maximum population is 65 and maximum population density is about 430/km², slightly higher than the population density in the more populated outer islands, but much less than Fongafale. Five TMTI staff members commute by boat from Fongafale. Women are in the minority on Amatuku, given that this is a training facility for men. Only a few women members of TMTI staff families live on the island.

51. The land occupied by TMTI is on a long-term government lease from private landowners. No apparent issues are related to the lease. The southern end of Amatuku (about 100 meters long) is still privately held and the small islet immediately to the north is also in private hands. Housing is provided to some TMTI staff and the dormitory is used to house the trainees. Staff housing is located toward the northern end of the island, whereas the trainees are housed in the southern section of the property. Segregation of residential areas from training and service areas is quite good and dense vegetation screens in most residential areas to provide some privacy. Housing is provided essentially free, with a nominal rent paid to TMTI.

52. The construction activities required to upgrade TMTI can be managed with minimal social impacts, especially as the construction can be phased over 2 years to reduce pressure on area and services. The proposed upgrading of the facilities on Amatuku will bring significant benefits: improved provision of basic services, better training facilities, and more comfortable housing. The social impacts and benefits of the construction project itself are considered in the

Summary Poverty Reduction and Social Strategy in Appendix 7 and detailed in Supplementary Appendix E.

2. Poverty Impact

53. As a result of the Project, the pool of seafarers actively involved in overseas employment will be maintained at the present level of 1,000, with around 45%, or 450, actually working overseas at any one time. Without the Project, the pool of seafarers will likely decline over time through attrition, due to retirement and other factors, with the number of new seafarers being trained not sufficient to maintain the numbers. After 25 years, the total active pool will have reduced from 1,000 to only 470.

54. About half of the males of working age are trained as seafarers. An estimated 60% of all households, or around 6,000 people, receive benefits directly from the remittance income earned by the seafarers. In the absence of the Project, this will reduce over time by at least 50%; thus about 30% of the households in Tuvalu stand to benefit directly from the Project.

55. The net increase in the level of remittance income due to the Project is estimated to total A\$3 million by the end of the Project's life. This is equivalent to A\$1,000 per person. No information on the distribution of poor households is available for Tuvalu, but the impact of this distribution can be expected to be pro-poor. Any increase in the pool of seafarers (or maintaining the present number) has a proportionally bigger impact on the poorer members of the community.

56. While most of the obvious benefits from the Project are in a monetary form, several nonmonetary benefits are apparent. The improvement in the standard of living or quality of life in the outer islands is expected to counteract the pressure to migrate to Fongafale. Employment as a seafarer provides a combination of a tax-free income-earning opportunity that far exceeds the remuneration from other work in Tuvalu, and the opportunity for relaxation time in their home communities between jobs. While employed, the seafarers are provided with full food, benefits, and lodgings. This represents a saving in consumption costs that they would otherwise incur if they were not at sea.

57. The use of remittance income to purchase construction materials for building better quality housing and water collection and storage facilities in the outer islands has a positive impact on the quality of life and health. The use of the money to pay for family members to attend school in the Fiji Islands allows the children of seafarers to receive a higher standard of education than they would expect to receive in Tuvalu, increasing their prospects for personal advancement and employment, while, at the same time, relieving the Government of some of its responsibilities to provide social services.

58. According to the United Nations Development Programme, Tuvalu has the lowest per capita GDP of US\$1,157 and the lowest human development index among the Polynesian countries. Fifty percent of the population has less than US\$1 cash income per day. Using this measure of poverty (which is not strictly correct, since most families in Tuvalu have land and access to fish), the level of poverty in the outer islands is three times higher than in Funafuti. The disparity in net cash income between Funafuti and the outer islands reflects the relatively high incidence of government jobs in Funafuti, whereas job and business opportunities on the outer islands are much more limited. The more disadvantaged groups (the old, the very young, and women) are concentrated on the outer islands, reflecting emigration of younger workers to

Funafuti and the overseas employment of almost half the men from the outer islands. Given this situation, seafarer remittances clearly have a role to play in supporting the social and economic welfare of the outer islands, where most of the seafarers come from.

59. The remittances are extremely important, but subject to global forces of supply and demand for seafarers. Fluctuations in the total annual seafarer remittances in the last 5 years have been considerable. Despite some dips in employment in the late 1990s, an increasing trend is evident. In early 2000, a high of 514 seafarers were at sea (on 79 vessels). The current level is 470 (September 2001). The main threats to stable or growing overseas employment for Tuvaluan seafarers include (i) competition from other countries, especially if maritime training quality in Tuvalu were to decline; and (ii) increasing incidence of seafarer alcohol abuse (and associated dismissals). The Project is aimed directly at this vulnerability of Tuvaluan seafarers, by providing the facilities and capacity for better training, and ensuring that they have a competitive advantage for international job opportunities.

60. Seafarer remittances received in Tuvalu in 2000 totaled around A\$4.7 million. Current indications are that this total will be higher in 2001 (at about A\$6.3 million), reflecting the recent increase in seafarer wages, the decreased value of the Australian dollar against the US dollar, and a relatively high level of employment. Analysis of the prorated distribution of seafarer remittances on an island basis (reflecting the home islands of Tuvaluan seafarers) was undertaken. The largest absolute amounts of seafarer remittance are earned by Nanumea-and Funafuti-based men, but, on a per capita basis, the greatest potential economic benefits of seafarer remittances will accrue to families based in Nanumea, Nui, Nukufetau, and Nukulaelae. The potential per capita distribution of seafarer remittances to Nanumea over the next year is A\$1,573, more than five times the per capita benefit to families with Funafuti listed as their home island. Clearly, the outer islands have a dependence on the seafarer remittances and a higher potential of economic benefit from them, compared with Funafuti. The Project is attempting, through the upgrading of TMTI, to secure these potential economic benefits to the outer islands.

3. Sexually Transmitted Diseases

61. HIV/AIDS is spreading fast in the Pacific region. In a country as dependent on overseas seafarers as Tuvalu, the consequences of even small numbers of HIV/AIDS positive cases could be devastating in such a small population. Tuvalu diagnosed the first HIV positive case in 1995 and 2 more cases up to 2001. However, in the month of January 2002, 6 cases were diagnosed, and the trend is obviously on the rise. Seafarers make up 7 of the reported cases and this has caused great concern, not only in the Government, but also among the shipping agents.

62. Much stricter guidelines have now been introduced before individuals are approved for overseas seafarer employment with the German shipping agencies. The seafarers' medical fitness certificate now includes psychological assessment, the medical officer's recommendation, and HIV/AIDS tests. While the HIV/AIDS test is not mandatory, strong suspicion will be raised if potential seafarers decline the test. The Government applies these tests to seafarers, scholarship students, and government and nongovernment workers.

63. TOSU has received funding from the International Transport Workers Federation for its awareness program on drugs and alcohol abuse as well as HIV/AIDS. The program trains trainers and the target is to have an HIV/AIDS mentor onboard each ship. In addition, SPC, with funding from the Australian Agency for International Development, World Health Organization,

and United States Agency for International Development, established its HIV/AIDS project in late 1990. The overall aim of this project is to strengthen the capacity of Pacific island countries and territories to minimize the impact of HIV/AIDS and sexually transmitted diseases by providing support and TA to national programs.

64. Both programs are ongoing and other assistance agencies in Tuvalu have expressed interest in participating in additional programs in the fight against the spread of HIV/AIDS. The level of awareness training, publication material, and special programs being implemented is quite intense and the absorptive capacity for this level of assistance is probably at its limit. Therefore, incorporation of HIV/AIDS activities in the Project is not warranted.

4. Environment

65. The environment classification of the Project is category B—a project with environmental impacts that are easily mitigated using established technologies and mitigating measures. The initial environmental examination (IEE) was completed in September 2001 as part of the project preparatory TA. The IEE was prepared in accordance with ADB's *Environmental Assessment Requirements*. The mitigation measures identified in the IEE are integrated in the engineering design and contract document. The Project will be implemented in accordance with ADB's *Environmental Guidelines for Infrastructure Projects*. The summary IEE is provided in Appendix 8 and the complete IEE is part of Supplementary Appendix F. Several factors preclude any significant negative environmental impacts associated with the Project: (i) the small scale of the Project; (ii) absence of any significant sensitive terrestrial, coastal, and marine habitats in the project area; and (iii) the fact that the Project essentially involves upgrading of facilities at an existing site (the increase in land area of the structures on Amatuku is only 8%).

66. The project design incorporates sound environmental management principles, including minimal disturbance of the seabed or terrestrial overburden, minimal cutting of trees, minimizing the land area of the Project by building up (rather than out), use of modular construction to minimize construction wastage, and use of solar power. The design features and specified good construction practices will be covenants of the contracts and will be monitored for compliance by the PMU.

C. Economic and Financial Analysis

1. Economic Analysis

67. The economic analysis of the Project for rehabilitating and upgrading TMTI was carried out following the normal benefit-cost analysis methodology based on the future with the Project minus the future without the Project, to indicate the net economic benefits to the Tuvalu economy. Economic performance is measured by the economic internal rate of return (EIRR) and the economic net present value (ENPV) at the chosen discount rate of 12%. A sensitivity analysis was then applied, testing the robustness of the results to changes in the basic assumptions.

68. The results of the base case, using the assumptions noted (para. 72), return an EIRR of 18.15%. The ENPV at a discount rate of 12% is A\$3.25 million. This indicates that the Project is a worthwhile investment for Tuvalu from an economic perspective, as it comfortably exceeds the EIRR discount rate of 12%.

69. The New Zealand Maritime School is the most realistic overseas training institute to compare with as it can accommodate the extra intake of trainees, no extra investment is needed by the school, its curriculum is similar to TMTI, it is not subject to political unacceptance, and its standing with IMO is not in jeopardy. The analysis is based on a 50 week course, including 16 weeks in Tuvalu for sea training on the *Nivaga II*. The annual fee per trainee, including accommodation and 2 round-trip airfares is about A\$20,000 at the current exchange rate. On this basis, the total cost for 90 trainees per year is A\$1.8 million.

70. The annual cost is just a little less than the cost of sending the trainees to New Zealand. However, this calculation does not take the cultural and linguistic aspects into consideration. Sending young people with only moderate English command and from isolated Pacific atolls overseas could be problematic.

71. The capital investment costs of the Project have been converted to their economic equivalent allowing for any transfer payments, taxes and duties, and the effects of inflation. The incidence of taxes and duties is very low for the project capital costs, as most construction items are imported duty free. The only significant tax is the 2.5% sales tax, which is assumed to apply to most capital costs. The economic costs of the Project indicate an overall conversion factor of 0.968 for the project base costs of US\$2.04 million. A constant exchange rate of US\$1.0=A\$1.76 has been used.

72. Some assumptions are common to the with-project and without-project situations:

- (i) average working life of approximately 15 years represented by an annual attrition rate of 7% of the pool of seafarers per year with loss due to retirement, suspension, and ill health;
- (ii) at any one time, 45% of the available pool of qualified and active seafarers are employed;
- (iii) the 470 seafarers employed in 2001 averaged monthly earnings of US\$762 per month; and
- (iv) an average of 75% of total earnings is remitted back to Tuvalu.

73. Cash flows over a project life of 25 years were analyzed for the two scenarios. The net annual benefits increase over time, reaching over A\$3.84 million per year as the divergence between the size of the pool of available seafarers increases with time. In the with-project situation, the available pool of seafarers is stable at around 1,000 (similar to the present numbers), while, in the without-project situation, the pool of seafarers reduces by half over a period of 20 years as a result of the lower number of new seafarers trained each year.

2. Sensitivity Analysis

74. The sensitivity analysis shows that the Project is robust to changes in the capital costs and to the ongoing operation and maintenance costs for TMTI, but that it is sensitive to the percentage of seafarer earnings that are remitted back to Tuvalu. It will be important for TMTI to ensure that full use is made of the upgraded facilities and that an increased number of new entrants are trained each year.

3. Financial Analysis

75. Financial and economic analyses are provided in Appendix 9 and detailed in Supplementary Appendix C. Only specific aspects of the analyses are presented here.

76. The basic annual costs of operating TMTI in the present state are estimated to be in the order of A\$630,000 per year. This is for a total of 60 trainees and 12 staff. Training is also provided for a number of seamen for refresher and upgrading courses, which is estimated to make up 15% of the training activity. Funding of the direct operating costs is fully supported by the Government, through scholarships provided to the 60 new trainees per year, plus an additional subsidy to make up any shortfall in meeting operating costs. In the Government's 2001 budget allocation, TMTI was allocated A\$400,000 as scholarships for 60 new trainees (A\$6,666 per head) and an additional A\$232,000 as a subsidy from the European Union funds, making a total allocation of A\$632,000.

77. The new capital expenditure proposed for upgrading TMTI has implications for the level of operating expenditure and increased maintenance requirements. Without the upgrading of its facilities, TMTI will be unlikely to maintain its White List status, jeopardizing the continuing employment of Tuvaluan seafarers, so capital expenditure must be incurred to upgrade the facilities. In the future, the objective will be to provide adequate funding for maintenance to keep the infrastructure in good condition and to avoid the need for periodic injections of capital to catch up with deferred maintenance.

78. With the new infrastructure, total annual maintenance is estimated to cost A\$83,450 per year (this includes maintenance for the extension of the office for MD at the main wharf on Fongafale). This amount is considerably more than TMTI has allocated for maintenance in the past, and highlights the importance of adequate maintenance to ensure that the assets are kept in good condition over their full economic life. If well maintained, the buildings and houses should last for 25 years or more. The design of the new facilities and buildings incorporates durable and noncorrosive materials, such as wood, aluminum, and treated steel, which are resistant to deterioration and corrosion—a problem in the salty atmosphere at Amatuku. While the cost of more durable materials adds to the overall initial capital costs, it will reduce the future ongoing maintenance requirements and ensure that the facilities function for their full planned economic life.

79. In addition, costs for debt servicing will increase for TMTI because of the ADB loan. Although TMTI may not be required to service the debt directly, it can be factored into the costs of running the institution to indicate the total cost and the change from the present situation. For example, the debt repayment obligation for the ADB loan, repayable over 24 years with a nominal interest rate of 1.5%, would involve an annual debt-servicing cost of around A\$183,000 per year, following the end of the 8-year grace period. The interest of 1% during the grace period would cost A\$33,000 per year during the first 8 years. MES has given assurance that the Government has agreed to the concept of user fees. Under the associated TA, options for recovering the costs of TMTI will be identified and evaluated.

D. Risks

80. Project implementation has few direct risks, although some risks pertain to the sector concerned. These, and suggested strategies to manage risk, include the following:

- (i) Frequent turnover of Government staff or people serving in temporary positions, while others are away on regional travel, presents a challenge to continuity in dialogue as the Project develops.
- (ii) Although TMTI is well on the way to full corporatization and greater autonomy, the process with Shipping Services may be slower. The integrity of the *Nivaga II* and its availability for training TMTI trainees would benefit from the separation of Shipping Services from MD, and the increased efficiency of these services.
- (iii) Staff currently employed by TMTI may change. However, the upgrading of TMTI and improvement in living conditions on the island will probably be a significant incentive for all current staff to remain.
- (iv) Poor weather may interfere with the construction schedule. This risk will be assumed by the contractors.
- (v) The Australian dollar may strengthen against the US dollar, which would reduce the purchasing power of the loan.
- (vi) The *Nivaga II* may not be available for training (if it is out of commission or not certified for passenger service). This is being addressed in the associated TA.
- (vii) Global demand for deck and engine room ratings may decline over the next few years, which would reduce employment opportunities for Tuvaluan seafarers. The increase in alcohol-related dismissals exacerbates this potential problem. Upgrading TMTI and the quality of Tuvaluan seafarers will be positive steps in addressing this risk. TOSU is providing awareness sessions for Tuvaluan seafarers to address the alcohol problem.
- (viii) The incidence of HIV/AIDS in Tuvalu is increasing. Tuvaluan seafarers, like those elsewhere, are at high risk of HIV infection; the issue is more of a concern in Tuvalu than elsewhere, since about half the male population of Tuvalu works overseas at some point.

VI. ASSURANCES

A. Specific Assurances

81. In addition to the standard assurances, the Government has given the following assurances, which are incorporated in the legal document:

- (i) **Counterpart funds.** The Government will ensure that the Project is accorded high priority and that adequate funds are allocated for disbursement for project activities beginning in 2002 and for subsequent years, and that procedures are in place for timely releases of funds for project activities throughout Project implementation.
- (ii) **TMTI management.** The Borrower shall ensure that there is continuity in TMTI management (chief executive officer, chief officer and chief engineer), during Project implementation, with qualifications relevant to the effective and efficient

administration and management of TMTI, and with competency and certificate levels, as necessary, to maintain TMTI's White List status with the IMO.

- (iii) **Benefit monitoring and evaluation.** The Government will ensure that implementation of the Project, and the overall benefits derived therefrom, are monitored and evaluated on an annual basis in accordance with a program satisfactory to ADB.
- (iv) **Environment.** With respect to the infrastructure components of the Project, the Government will comply with all applicable national and local environmental laws, comply with all applicable ADB environmental guidelines, and ensure that any adverse environmental impacts related to the construction and operation of the facilities under the Project are minimized through appropriate mitigation measures.
- (v) **Land.** The Government will, at all times, continue to hold the land, rights in land, or leases required for the provision or improvement of the project facilities.

B. Condition for Loan Effectiveness

82. The Government will ensure that the management team of TMTI (chief executive officer, chief officer, chief engineer) is in place.

VII. RECOMMENDATION

83. I am satisfied that the proposed loan would comply with the Articles of Agreement of ADB and recommend that the Board approve the loan in various currencies equivalent to Special Drawing Rights 1,394,000 to Tuvalu for the Maritime Training Project from ADB's Special Funds resources, with an interest charge at the rate of 1% 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.

TADAO CHINO
President

23 September 2002

PROJECT FRAMEWORK

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>Goal To contribute to the sustained livelihood and well-being of the outer island communities where primarily the old, the very young, and women live</p>	<p>Ongoing contribution of seafarer remittances to Tuvalu remains stable at A\$6 million-8 million per year, or increasing, over the next 25 years, with measurable improvement in social and economic conditions in the outer islands</p>	<p>Use of the project benefit and monitoring evaluation of the Island Development Program survey facility to determine socioeconomic changes in the Outer Islands</p> <p>Monitoring of Tuvalu Overseas Seafarer Union and National Bank of Tuvalu data on seafarer employment levels and annual remittances</p>	
<p>Purpose To ensure that Tuvalu Maritime Training Institute (TMTI) and Marine Department (MD) meets the standards and requirements of the International Maritime Organization (IMO) in order to continue to provide basic training and more specialized refresher and upgrade courses to young trainees and active seafarers</p>	<p>TMTI passes IMO external audit prior to 2005 and remains accredited (White List) as a training institute to supply seafarers for the international market</p>	<p>IMO audit</p> <p>The Secretariat of the Pacific Community (SPC) and crewing agency inspections</p>	<p>Government ensures that recruitment of competent management staff at TMTI is not compromised</p>
<p>Outputs</p> <p>1. Infrastructure Upgrade</p> <p>1.1 Wharf extension, new staff houses, renovation of existing staff houses, rehabilitation of training facilities, extension of trainees accommodation</p> <p>1.2 Specialized training equipment e.g., fire-fighting and navigation</p> <p>1.3 Increased water catchment and storage capacity</p> <p>1.4 Improved telecommunication and backup solar power system</p>	<p>All required training equipment and facilities in place and operational by June 2003</p> <p>All other structures and systems constructed, installed, and operational by September 2004</p> <p>TMTI is equipped and structured to perform training at prescribed IMO standards by September 2004</p>	<p>Monthly reports from the project management unit (PMU) supervisory consulting engineer</p> <p>Half-year progress reports</p> <p>IMO audit</p>	<p>Competent consulting engineer can be engaged to serve the PMU function</p> <p>Risk. Bad weather, disruptions in shipping services or power supply, potential sporadic availability of local labor, material shortages, fluctuations in the exchange rate, etc., will be the responsibility of the contractors</p>

<p>1.5 Extension of MD's offices at Fongafale with separation of MD and the Shipping Service</p> <p>2. Technical Assistance</p> <p>2.1 Management and organization of TMTI complies with the Convention on Standards of Training, Certification, and Watchkeeping as amended in 1995 (STCW 95) requirements</p> <p>2.2 Training and curriculum development reflecting current international practices as demanded by the shipping industry</p>	<p>TMTI can accommodate an increase of up to 30 trainees per year, and perform all refresher and upgrading courses necessary</p> <p>Practical training onboard <i>Nivaga II</i> becomes an integrated part of TMTI's curriculum</p> <p>STCW 95 certification issued to TMTI upon demonstration of practical competency by the ratings</p> <p>Audit history, as required by the MD, developed system to measure and manage the performance of TMTI staff implemented</p> <p>Specialist training in arc, gas and aluminum welding implemented in first year of the technical assistance (TA)</p> <p>Refresher and upgrading courses in fire fighting, survival, first aid, oil, chemical, and liquid petroleum gas tanker familiarization introduced by end of first year</p>	<p>TMTI yearly report</p> <p>TMTI training program</p> <p>IMO audit</p> <p>IMO audit</p> <p>TMTI training program</p> <p>TMTI training program</p>	<p>Population pool of 17–25 year old males remains stable or grows over the next 25 years</p> <p>Continued Government support for the reorganization</p> <p>Current staff at TMTI remains and high quality staff will be added</p> <p>Regular consultations with TMTI staff and TMTI board</p> <p>Risk. Human immunodeficiency virus, acquired immune deficiency syndrome, and alcohol abuse will be effectively addressed by other development agencies through training and awareness-raising</p>
<p>Activities</p> <p>Procurement and installation of specialized training equipment</p> <p>Construction and renovation of houses, training facilities, and offices</p> <p>Installation of water catchment and storage, solar power systems, communication systems</p> <p>Wharf extension</p> <p>MD office</p> <p>Technical Assistance</p>	<p>Start. 3rd Q 2002</p> <p>Comp. 1st Q 2003</p> <p>Start. 4th Q 2002</p> <p>Comp. 3rd Q 2004</p> <p>Start. 4th Q 2002</p> <p>Comp. 1st Q 2004</p> <p>Start. 3rd Q 2002</p> <p>Comp. 1st Q 2003</p> <p>Start. 1st Q 2003</p> <p>Comp. 3rd Q 2004</p> <p>Start. 3rd Q 2002</p> <p>Comp. 4th Q 2004</p>		<p>Equipment is available from supplier</p> <p>No adverse or extreme weather conditions e.g., typhoons will delay construction</p> <p>Transfer of construction material from main wharf on Fongafale by launch to Amatuku proceeds smoothly</p> <p>No unexpected adverse bottom conditions</p> <p>Consultants will be fielded in a timely manner</p>

Inputs			
Consulting services	International	11 person-months	
Civil works	US\$1.66 million		
Equipment	US\$0.2 million		
Counterpart funding	US\$0.46 million		

COST ESTIMATES

Table A2.1: Project Components Cost Summary

Component	(A\$)			(US\$)			% Foreign Exchange	% Total Base Costs
	Local Currency	Foreign exchange	Total Cost	Local Currency	Foreign Exchange	Total Cost		
Development and Rehabilitation of TMTI and Marine Department								
Upgraded Wharf Facilities	29,446	265,011	294,457	16,636	149,724	166,360	90	8
Fire-fighting Facilities	23,603	212,430	236,033	13,335	120,017	133,352	90	7
Water Collection and Storage	16,245	146,209	162,454	9,178	82,604	91,782	90	5
New Staff Houses	70,074	630,663	700,737	39,590	356,307	395,897	90	19
TMTI Buildings Rehabilitation	52,767	885,814	938,581	29,812	500,460	530,272	90	26
Solar Power System	6,321	120,109	126,430	3,571	67,858	71,429	95	4
Renovation of Staff Houses	37,149	220,914	258,063	20,988	124,810	145,798	90	7
Marine Department Office Extension	33,074	292,362	325,436	18,686	165,176	183,862	90	9
Telecommunication Upgrade	2,951	56,051	59,002	1,667	31,667	33,334	95	2
Equipment Procurement	9,841	186,974	196,815	5,560	105,635	111,196	95	5
Supervisory Engineer	27,957	285,251	313,208	15,795	161,159	176,954	91	8
Subtotal Base Costs	309,428	3,301,788	3611,216	174,818	1,865,417	2,040,235	91	100
Physical Contingencies	26,470	247,966	274,436	14,955	140,094	155,049	90	7
Price Contingencies	13,565	126,985	140,550	7,664	71,743	79,407	90	4
Interest During Construction	0	49,560	49,560	0	28,000	28,000	100	1
Total	349,463	3,726,299	4,075,762	197,437	2,105,254	2,302,691	91	111

TMTI - Tuvalu Maritime Training Institute.
Source: Asian Development Bank estimate.

Table A2.2: Expenditure Account Cost Summary

Expenditure Account	Local	Foreign	Total	Local	Foreign	Total	% Foreign	% Total
	Currency	Exchange	Cost	Cost	Exchange	Cost		
		(A\$)			(US\$)			
A. Investment Costs								
1. Civil Works and Construction								
Preliminary Works	63,794	574,149	637,943	36,042	324,378	360,420	90	18
Buildings	132,904	1,498,802	1,631,706	75,087	846,781	921,868	90	46
Structures	39,777	357,993	397,770	22,473	202,256	224,729	90	11
Water Tanks	4,039	36,345	40,384	2,282	20,534	22,816	90	1
Fittings	20,389	183,501	203,890	11,519	103,673	115,192	90	6
Subtotal (I)	260,903	2,650,790	2,911,693	147,403	1,497,622	1,645,025	90	82
2. Equipment and Machinery	19,316	367,001	386,317	10,913	207,345	218,258	95	11
3. PMU Supervisory Engineer	27,975	285,251	313,226	15,795	161,159	176,954	90	8
Total Investment Costs	308,194	3,303,042	3,611,236	174,111	1,866,126	2,040,237	91	100
B. Recurrent Costs								
1. Physical Contingencies	27,444	246,993	274,437	15,505	139,544	155,049	90	7
2. Price Contingencies	14,056	126,498	140,553	7,941	71,468	79,408	90	4
3. Interest During Construction	0	49,560	49,560	0	28,000	28,000		
Total Costs	349,694	3,726,093	4,075,787	197,557	2,105,137	2,302,694	91	111

PMU = project management unit

Source: Asian Development Bank estimate

Table A2.3: Expenditure Account by Financier

(\$)

Item	The Tuvalu Government		In-Kind Construction Plant		ADB		Total		Foreign Exchange	Local (excl. Taxes)	Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%			
A. Civil Works & Construction											
Preliminary works	68,293	16.6	30,399	7.4	311,652	75.9	410,344	17.8	360,289	30,797	10,259
Buildings	151,009	14.5	74,371	7.0	815,405	76.7	1,040,785	46.0	942,190	79,482	26,470
Structures	65,925	25.1	19,758	7.5	166,501	63.5	252,184	11.4	230,956	19,674	6,555
Water tanks	2,745	10.7	2,386	9.3	20,525	78.2	25,656	1.1	23,088	1,927	641
Fittings	31,131	23.9	11,522	8.9	87,498	67.2	130,151	5.7	117,122	9,775	3,254
Subtotal (A)	319,103	17.3	138,436	7.3	1,401,581	75.2	1,859,120	82.0	1,673,645	141,654	47,178
B. Equipment & Machinery	0	0	0	0	238,832	100.0	238,832	10.4	226,770	6,092	1,970
C. PMU Supervisory Engineer	0	0	0	0	176,741	100.0	176,741	7.7	176,741	0	0
Total	319,103	14.0	138,436	6.0	1,817,154	80.0	2,274,693	100.0	2,077,156	147,746	49,148
Interest During Construction	0	0	0	0	28,000	100.0	28,000	1.2	28,000	0	0
Total Disbursement	319,103	14.0	138,436	6.0	1,845,154	80.0	2,302,693	100.0	2,105,156	147,746	49,148

ADB = Asian Development Bank, PMU = project management unit

Source: Asian Development Bank estimate

Table A2.4: Cost of Technical Assistance for TMTI and Marine Department

Investment Cost	Unit	Quantities				Unit Cost	Base Cost			Total
		2002	2003	2004	Total	(US\$)	2002	2003	2004	
A. International Consultants										
Management/Organization Specialist	p-m	1	2	1	3	20,000	20,000	20,000	20,000	60,000
Maritime Education Specialist	p-m	1	1	1	3	20,000	20,000	20,000	20,000	60,000
Technical Subject Matter Specialist	p-m	1	1	0	2	20,000	20,000	20,000	0	40,000
Maritime Engineering Specialist	p-m	2	1	0	3	20,000	40,000	20,000	0	60,000
Unallocated	p-m		1-2			15,000	0	30,000	0	30,000
Subtotal (A)							100,000	110,000	40,000	250,000
B. Other Costs										
1. Discretionary Professional Qualifications	DP	1	2	1	4	4,000	5,000	5,000	6,000	16,000
2. Training Materials	DP	0.5	0.5	0	1	25,000	12,500	12,500	0	25,000
Subtotal (B)							17,500	17,500	6,000	41,000
C. Govt. of Tuvalu Support ^a										
1. Counterpart Staff	p-m	4	6	6	16	1,250	6,000	7,000	7,000	20,000
2. Office and general Support ^b	DP	1	2	1	4	8,000	10,000	11,000	11,000	32,000
Subtotal (C)							16,000	18,000	18,000	52,000
Total							133,500	115,500	94,000	343,000

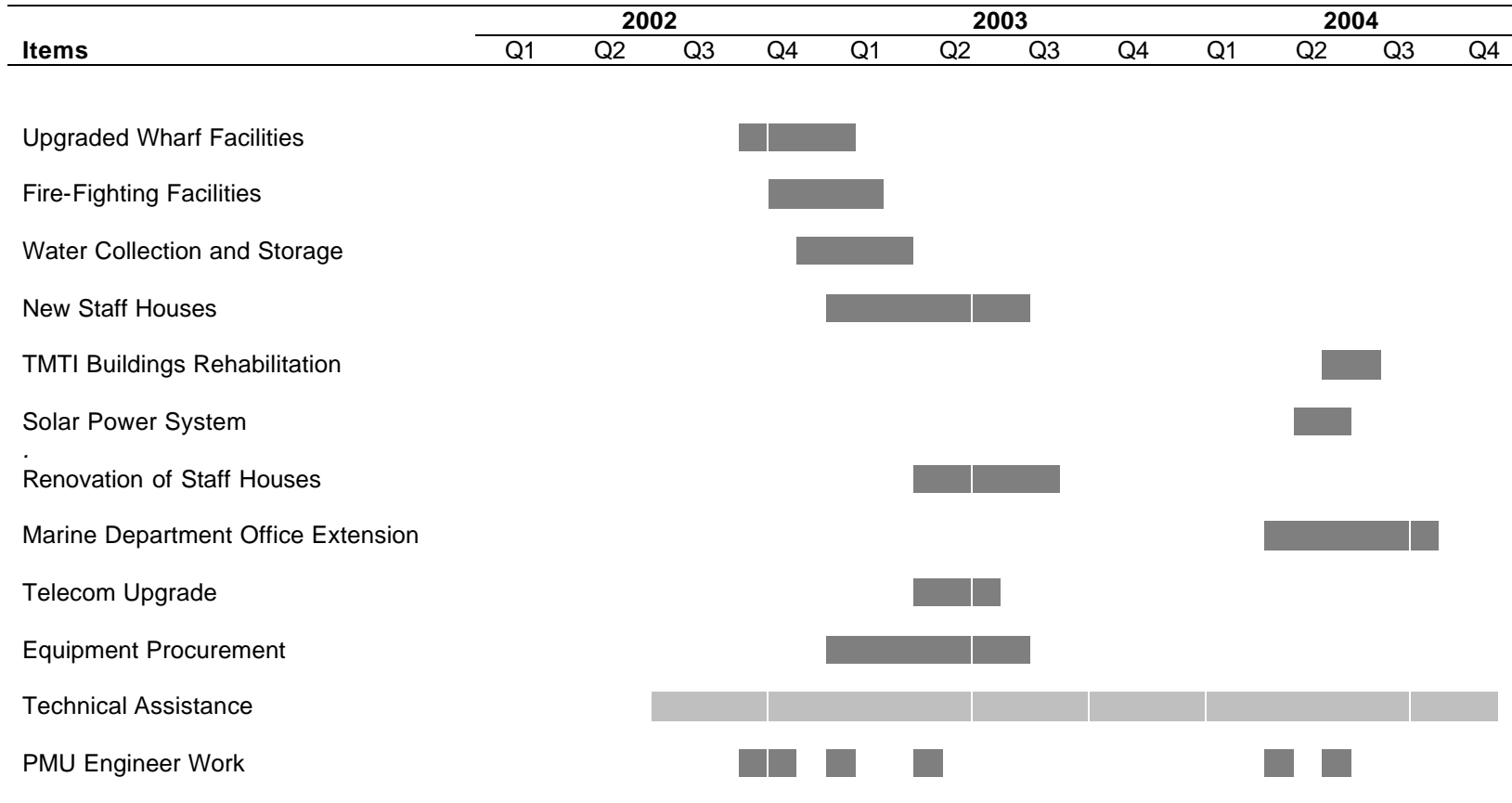
DP = direct purchase, p-m = person-months, TMTI = Tuvalu Maritime Training Institute.

^a Value of support and counterpart expenses provided by the Government

^b Office facilities, local transport, communications.

Source: Asian Development Bank estimate.

IMPLEMENTATION SCHEDULE



PMU = Project Management Unit, TMTI = Tuvalu Maritime Training Institute.

CONTRACT PACKAGES

Description	Estimated Contract Value (US\$)	Procurement Mode
A. Infrastructure Development		
1. Upgraded wharf facilities (extension and repairs)	191,400	
2. Fire-fighting training facilities (fire-fighting simulator, court upgrade and grading)	131,200	
3. Water collection and storage collection (new water tank, extra catchment facilities, upgrade ablution block)	86,800	
4. New staff accommodation (2 standard houses, 2 duplex houses)	298,200	
5. TMTI buildings rehabilitation (classroom extension, dormitory extension, recreational hall, galley and mess extension, TMTI office extension, seamanship extension)	696,500	
6. Solar power backup	80,000	
7. Marine Department office extension	200,000	
8. Staff house renovation (standard house renovation, executive house renovation, sick bay, workshop)	185,500	
9. Telecom system upgrade (Upgrade telecom and internet system, upgrade telephone system)	36,300	
Subtotal (A)	1,905,900	ICB
B. Equipment		
Steering simulator	10,300	DP
Forklift & winch	17,900	DP
Launch and aluminum boat	25,900	DP
Electric hoist	3,300	DP
Workshop equipment	26,900	DP
Protection gear	11,400	DP
Fire-fighting equipment	12,100	DP
Sea survival suits	2,800	DP
Fire pump and accessories	9,600	DP
Subtotal (B)	120,200	
C. Consulting Services		
Civil Engineer to assist PMU	175,000	CS

CS = consulting services, DP = direct purchase, ICB = international competitive bidding, PMU = project implementation unit.

Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANT

A. Consultant

1. An engineer will be engaged as the consultant for the Project. The engineer's tasks will involve
 - (i) undertaking a prequalification exercise calling and reporting on prequalifications and tenders, and recommending award of contracts;
 - (ii) carrying out independent quality control; and,
 - (iii) administering contracts, including issuing payment certificates for the construction works, issuing variation orders, and conducting regular site meetings.
2. The engineer should be familiar and experienced with Tuvalu conditions, working with public works departments (PWDs), and understanding the engineering challenges associated with the adverse ground conditions and other unique challenges of Project. These include getting the materials to site, using local labor, and minimizing disruptions to ongoing operations and Asian Development Bank requirements.
3. To conduct the necessary level of quality control for the wharf extensions, and particularly the excavation for, and construction of, the underwater beams and columns, the engineer will need to be a qualified diver.

B. Specific Terms of Reference

4. After selection of the consultant, the following sequence of events is recommended:
 - (i) prequalifying tenderers;
 - (ii) drawing up an advertisement for publication in agreed media outlets (e.g., Fiji Times and Australian and New Zealand papers);
 - (iii) drawing up prequalification documents and releasing to interested contractors
 - (iv) evaluating contractors' submissions and, upon approval by the project management unit, selecting contractors to tender;
 - (v) releasing tender documents to shortlisted selected tenderers;
 - (vi) Receiving, analysing, evaluating, and reporting on tenders; recommending tender for acceptance; and
 - (vii) awarding of the tender on PWD's behalf.
5. At the construction stage the recommended steps are
 - (i) arrange inception meeting on site with contractor and PWD, and site meetings at regular intervals;
 - (ii) check that insurance, program, bond, and other requirements of specification are in place;
 - (iii) conduct regular site inspections, particularly with regard to excavations, placement of reinforcing steel and inspection of all other components before they are concealed;
 - (iv) receive and moderate payment claims and issue payment certificates;
 - (v) issue site instructions; and
 - (vi) clarify design requirements.

TECHNICAL ASSISTANCE

A. Terms of Reference

1. The technical assistance (TA) will require international consulting services in the fields of technical and maritime education, management of maritime training organizations, and design and implementation of international ship management and planned vessel maintenance systems.

1. Management and Organizational Specialist (3 person-months)

2. The specialist will undertake the following:

- (i) Assist the Tuvalu Maritime Training Institute (TMTI) to improve the process of internal audit of quality systems and to develop an audit history as required by the Marine Department and the provisions of Convention of Standards of Training, Certification, and Watchkeeping of 1995 (STCW 95).
- (ii) Assist TMTI in preparing for the process of external audit by the appointed agents of the International Maritime Organization (IMO) as required by STCW 95.
- (iii) Assist TMTI/Government to promote a coherent framework for targeted support by regional aid agencies to enhance and assist the programs of TMTI and support compliance with STCW 95 requirements.
- (iv) Within the framework and context of the long-term relationship envisaged for this TA, provide professional, financial, and operational advice on the operation and management of a maritime training institution as requested by the chief executive officer, board of TMTI, and/or the Government of Tuvalu.
- (v) Promote the exchange of tutors between comparable maritime training institutions and assist TMTI and regional organizations in accessing sources of funding for this activity.
- (vi) Provide advice to the Government as necessary on enhancing and strengthening performance of the board of directors of TMTI, and implement a system at TMTI to measure and manage the performance of TMTI staff.
- (vii) Implement a program of planned maintenance and replacement of infrastructure, facilities, and equipment at TMTI to ensure the capacity to deliver the practical components of current programs to the standards required, and protect the value of the loan investment.
- (viii) Provide assistance and advice to the management of TMTI to facilitate the procurement of equipment, machinery, and teaching materials appropriate for the programs delivered at TMTI, within limits outlined in the TA budget and allocated in the Asian Development Bank loan documentation.
- (ix) Assist TMTI in the formation and best use of an advisory stakeholder organization and promote private sector involvement in TMTI programs.

- (x) Identify and evaluate options for the recovery of TMTI's costs from TMTI's students, graduates, employers of graduates, or other potential sources.
- (xi) Appraise proposals for the delivery of an integrated rating program at TMTI; and recommend options to the board for evaluation based on cost efficiency, employment outcomes, resource capacity, and compliance with regulatory requirements.

2. Maritime Education Specialist (3 person-months)

3. The specialist will have the following responsibilities:

- (i) Conduct seminars on assessment practice and competency-based assessment for staff at TMTI to ensure best practice and compliance with STCW 95, and model such skills for tutors in shared deliveries with trainees.
- (ii) Provide the minimum formal IMO-approved "train-the-trainer" input required for maritime training at TMTI, preferably on site at Amatuku or alternatively by means of distance delivery.
- (iii) Develop and lead TMTI staff in a methodical process of annual work planning, and review to ensure all programs delivered incorporate relevant skills and competencies.
- (iv) Develop and lead TMTI staff in a planned approach to the adaptation of the existing Australian Maritime College (AMC) student learning package to a format more relevant for use with Tuvalu trainees, and provide the technical advice and expertise to resource this exercise.
- (v) Develop and lead TMTI staff in reviewing the present AMC assessment material, and evolving techniques and material more suited for the unique learning conditions for trainees at TMTI.
- (vi) Advise and assist TMTI in replenishing and replacing the existing stock of video material used for training purposes.
- (vii) Assist TMTI staff in identifying opportunities for training and assessment arising from the availability of the *Nivaga II* or any other training vessel, and work with the TMTI instructors to develop learning and assessment opportunities for trainees.
- (viii) Propose practical options for the delivery of an Integrated Rating program and lead the process within TMTI of developing the syllabus and program approval documentation necessary for delivery to proceed.

3. Technical Education Specialists (2 person-months)

4. Responsibilities of the specialist to include the following:

- (i) Deliver specialist training in arc, gas, and aluminium welding to staff relevant to the training programs offered at TMTI and the employment destinations of trainees.

- (ii) Support TMTI staff in development of teaching and learning materials to reflect current practice and relevant to the engineering ratings programs delivered at TMTI.
- (iii) Deliver refresher training to TMTI staff and assist in the improvement of teaching, learning, and assessment materials in the following specialist areas: fire fighting; survival; first aid; and oil, chemical, and liquid petroleum gas tanker familiarization.

4. Maritime Engineering Specialist (3 person-months)

5. Responsibilities include the following:

- (i) Develop and implement an international ship management (ISM) system appropriate for the vessels of the Tuvalu Shipping Corporation.
- (ii) Develop the documentation and procedures necessary to enable effective management of the ISM system by the Tuvalu Shipping Corporation.
- (iii) Assist the officers of the vessels controlled by the Tuvalu Shipping Corporation in the developing and implementing an effective system of planned preventative maintenance aboard the vessels, making efficient use of the availability of the trainees and equipment provided by TMTI.
- (iv) Assist the officers of the vessels controlled by the Tuvalu Shipping Corporation to plan and provide for the Classification Society special survey of the *Nivaga II* in 2003, in order to better manage the associated time and costs.
- (v) Assist the management of the Tuvalu Shipping Corporation to develop a 5-year maintenance budget for the vessels controlled by the Corporation.

B. Reports

6. The consultants will be required to submit assessment reports following each input as well as a brief outline of the possible needs to be addressed during their following assignments. Upon completion of each specific subject area each consultants will produce their final report with clear recommendations on how to ensure sustainability and continued accreditation to the IMO White List.

C. Cost Estimates

Table A6.1: Cost Estimates and Financing Plan
(US\$'000)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank Financing^a			
1. International Consultants			
a. Remuneration and Per Diem	190	0	190
b. International and Local Travel	40	0	40
c. Reports and Communications	2	0	2
2. Training equipment	25	0	25
3. Representative for Contract Negotiations	5	0	5
4. Contingencies	29	0	29
Subtotal (A)	291	0	291
B. Government Financing			
1. Office Accommodation and Transport	0	16	16
2. Remuneration and Per Diem of Counterpart	0	32	32
3. Others	0	4	4
Subtotal (B)	0	52	52
Total	291	52	343

^a Financed from the Japan Special Fund.

Source: Asian Development Bank estimates

SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

A. Linkages to the Country Poverty Analysis

Sector identified as a national priority in country poverty analysis? (CPA pending)	<u>No</u>	Sector identified as a national priority in country poverty partnership agreement? (CPPA pending)	<u>No</u>
<p>Contribution of the sector/subsector to reduce poverty in Tuvalu:</p> <p>About half of the males of working age are trained as seafarers. An estimated 60% of all households, or around 6,000 people, receive benefits directly from the remittance income earned by the seafarers. In the absence of the Project, this will reduce over time by at least 50%, so about 30% of all households stand to benefit directly from the Project.</p> <p>The majority of the people living on the outer islands are the old, the very young, and women. The outer islands have a higher dependence, on a per capita basis, on the seafarer remittances and a higher potential of economic benefit from these, compared with the main island Funafuti. The Project will secure these potential benefits.</p>			

B. Poverty Analysis

Proposed Classification

Seafarers, potential students, and trainees	Thematic: Poverty classification:	Human Development Poverty intervention
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C. Participation Process

Stakeholder analysis prepared	Yes
Participation strategy	No

D. Social Issues

	Significant/ Not Significant/ None	Strategy to Address Issues	Output Prepared ^a
Resettlement ^b	None		No
Gender	None		No
Affordability	None		No
Labor	None		No
Indigenous Peoples	None		No
Other Risks/ Vulnerabilities	HIV/AIDS	The Secretariat of the Pacific Community and the International Transport Workers Federation both fund programs for Tuvalu in this area.	No

^a A plan is required if any of the potential issues are found significant.

^b Significant involuntary resettlement requires a full resettlement plan; not significant requires a short resettlement plan.

A. Social Analysis

1. The social analysis of the proposed upgrading of the Tuvalu Maritime Training Institute has 2 aspects:

- (i) the economic and social importance of Tuvalu Maritime Training Institute (TMTI) to the general economy of Tuvalu, and the outer islands in particular, which provides a fundamental justification for the proposed loan project (the “do nothing” option would have very serious consequences for the whole of Tuvalu); and
- (ii) the potential social impact (both disruptions and benefits) of the Project itself (the construction activities that are required to upgrade the TMTI facilities), on the staff and trainees resident on Amatuku Islet.

2. The economy of Tuvalu is very much dependent on remittances of seafarers, most of whom were trained at TMTI, and the ability of TMTI to provide the required basic training and refresher courses in the future, at the standards set by the International Maritime Organization (IMO), is now critically dependent on the proposed upgrading project. The following details provide evidence of the social importance of TMTI and the Tuvaluan seafarers to provide a context for the proposed loan and to inform the poverty impact analysis.

3. An abundance of data is now available on the overall economic situation in Tuvalu, provided in the 1997 Economic Report for Tuvalu (Asian Development Bank [ADB]), the ADB Country Assistance Plan (for 2001–2003), and the recent results of the Project Monitoring and Evaluation exercise (the ADB-supported Island Development Program). Relevant data from these reports have been reworked and interpreted to highlight the link between TMTI, the seafarer remittances, and the economies of the outer islands—the specific focus of this social analysis.

B. Tuvaluan Seafarers and Their Potential Contribution to the Outer Islands

4. Most Tuvaluan seafarers come from the outer islands (almost 60%, with only 10% from Funafuti; 30% of Tuvaluan seafarers were born outside Tuvalu. Nanumea, Nukufetau, Nukulaelae, and Niutao especially have a very strong reliance on remittances for income. Income from wages, salaries, and business (combined) does not equal the income provided by remittances. Clearly, the level of government service (and related job opportunities) and the extent of business opportunities are both limited on these outer islands.

5. Less than 15% of the income on any of the outer islands can be tied directly to resource-based activity, such as fishing, farming, or production of handicrafts. With such limited scope for business income, limited opportunities for wages and salaries, and an increasing demand for products that require cash (moving away from a subsistence economy), the seafarer remittances are relied on to provide the products and commodities that must be purchased abroad, and to fund increasingly expensive services, such as electricity and good quality education (usually outside Tuvalu). Remittances are allocated in 3 basic categories (i) food and other such consumables, (ii) support to social services (church and education), and (iii) what can be considered luxury goods (high technology, energy consumptive goods, compared with traditional materials and goods). With the exception of support to the church, most financial support provided by seafarers is directed at their specific families. Without tax revenue from seafarer remittances, the poorer groups in Tuvaluan society cannot be immediate beneficiaries

of seafaring activity, even though the Government subsidizes the training of seafarers, which can be viewed as reinforcement of a preferential, or even elitist, benefit

6. The data for shipment of cargo and movement of passengers between Funafuti and the outer islands suggest that the island groups are very similar. The central islands (Vaitupu, Nui, and Nukufetau) consistently show slightly higher volumes per capita of cargo and fuel shipments compared with the other island groups, but the overall range of cargo shipped per capita for all the islands is only 0.04 to 0.08 cubic meters (m³) per month. The least amount of cargo shipped from Funafuti (on a per capita basis) is to Nukulaelae and Nuilakita. The amount of fuel shipped shows a similar small range per capita: 0.004-0.007 tons per capita per month, with the highest volumes going to the Central Group. Both outgoing cargo and fuel shipments showed slight increases in 2000 compared with 1999. This may reflect, to some extent, the increased level of remittances in 2000, but this cannot be ascertained for sure. The highest level of interisland travel per capita occurs between the Southern Group of islands (mostly Nukulaelae) and Funafuti. The least amount of travel per capita is evident in the Northern Group, probably reflecting the more remote location of these islands and atolls. Overall, approximately one in two people from the outer islands travel at least once per year between their home island and Funafuti.

7. According to the United Nations Development Programme (UNDP) *Pacific Development Report* (1999), Tuvalu has the lowest per capita gross domestic product (GDP) (US\$1,157) and the lowest human development index among the Polynesian countries. Fifty percent of the population has less than \$1 cash income per day. Using this measure of poverty (which is not strictly correct, since most families in Tuvalu have land and access to fish), the level of poverty in the outer islands is three times higher than in Funafuti. The disparity in net cash income between Funafuti and the outer islands reflects the relatively high incidence of government jobs on Funafuti, whereas job and business opportunities on the outer islands are much more limited. The more disadvantaged groups (the old, the very young, and women) are concentrated on the outer islands, reflecting emigration of younger workers to Funafuti and the overseas employment of almost half the men from the outer islands.

8. Land is at a premium throughout Tuvalu, with about 90% held by private landowners, so area for investment and expansion of services is limited. In 1996, the population density on Funafuti was 1,756 people per square kilometers, reflecting emigration from the outer islands, further splitting of family land area in Funafuti, and increase in household size. Population density in the outer islands is about one fifth to one quarter what it is in Funafuti. One of the main concerns of the Government is to increase the welfare and level of economic activity in the outer islands, and at the same time reduce the pressures on land and services in Funafuti.

9. Several recent initiatives are addressing the disparities between Funafuti and the outer islands. In the first instance, the Falekaupule Trust Fund (FTF) has been set up, owned by the eight island communities. The FTF is supported by the Island Development Program (IDP), which is funded by ADB. In the second instance, electricity is now available on all the islands, provided by the Tuvalu Electricity Corporation, and backed up with solar power units and private generators. Community fisheries centers have been set up on three of the islands. In a recent survey (IDP, 2000), most outer islands noted an adequate level of water storage and supply (under most conditions), availability of flush and water seal toilets, and access to electricity.

10. Nevertheless, survey respondents noted many areas for improvement. The required improvements, as seen by outer islanders, fall into the categories of public services and infrastructure, environment, and private infrastructure. Health, education, and shipping

deficiencies in the outer islands might best be handled by FTF projects, or government-funded initiatives, where these require government policy support and strategic interventions that have the most benefit per capita. The suggested improvements that might be funded by seafarers and their families include

- (i) improve water supplies at the individual level, or supported as a community initiative;
- (ii) improve housing, which can be considered a private investment;
- (iii) increase investment in business, assuming that demand is adequate for certain commodities and services and competition can be ensured;
- (iv) improve agriculture (perhaps improve technology or plant and animal husbandry approaches, given the limited land), reducing the demand for imported, processed foods;
- (v) improve environmental quality, not necessarily with cash, but could be seed-funded as community-based initiatives; and
- (vi) provide playgrounds, sports facilities, and markets: these could be funded or supported by seafarers, and operated as community or private sector initiatives.

11. Although seafarer remittances play an important role in supporting outer island communities, and will continue to do so, the benefits provided by remittances, which are heavily subsidized by government (with free basic training initially and no tax collected on subsequent income), are not equitably distributed throughout the outer islands. To pursue the policy of outer island improvements, the Government needs to consider how to capture some of the revenue from seafaring and use it to address the needs of marginalized members of Tuvaluan society.

C. Poverty Impact

12. This section identifies the impact of the Project on the main stakeholders and the distribution of the net benefits. This has been carried out following ADB guidelines.¹

13. The main benefit from the Project is that it will maintain the pool of international seafarers and ensure that the earnings and level of remittance income from this group are at least maintained at the current level. The without-project situation with the assumed closure of TMTI would result in a decline in the number of active seafarers and a reduction in overseas remittances over time.

1. Distributional Effects

14. Table A7 summarizes the distribution of net economic benefits of the Project. The financial project statement is from the point of view of TMTI. As no fees are charged or costs recovered from the trainees and seafarers, the training institute has no revenue and is totally supported by the Government. The main economic benefit is the remittance income generated by the seafarers, which is used by the families and beneficiaries in the seafarers' communities. The Project will result in the distribution of benefits to the communities, particularly in the outer

¹ ADB. 2001. *Handbook for Integrating Poverty Impact in Economic Analysis of Projects*. Manila.

islands, where remittances from seafarers are the main source of income, directly benefiting an estimated 60% of all households.

Table A7: Distribution of Net Economic Benefits

Benefits	Financial Present Values	Conversion Factor	Economic Present Values	Difference Economic minus Financial	Distribution of Project Effects	
					Government TMTI	Seafarers & families
Revenue	0		0	0		
Seafarers	0		8,189	8,189		8,189
Total benefits			8,189	8,189		
Costs						
Capital costs	3,136	0.968	3,036	(100)	100	
TA	481	1.0	481	0		
TMTI O&M	3,608	1.0	3,608	0		
Capital replacement	354	1.0	354	0		
Total costs	7,579		7,479	(100)		
Net Benefits	(7,579)		710	8,289		
Gains & Losses					100	8,189

O&M = operation and maintenance, TA = technical assistance, TMTI = Tuvalu Maritime Training Institute.
Source: Asian Development Bank estimate.

15. Seafarers do not pay income tax on their overseas earnings and the incidence of indirect taxation on the expenditure of the remittance income is negligible, as the main consumption items of food, construction materials, church donations, and school fees do not attract customs duty. Therefore, the beneficiaries and their families stand to make a substantial gain from the Project at no financial cost. In effect, the Project will result in a large transfer payment to the seafarers and their families. While this is a fundamental and accepted aspect of the Tuvalu economy, not all households receive benefit from remittance income, and households that do not have a family member working as a seafarer will not be as well off. Although some informal mechanisms will be used to redistribute wealth in the outer island communities, through the church and social conventions for example, nevertheless the benefits will not be shared equitably by households. The recovery of some of TMTI's training costs through a user pay system, the introduction of tax on overseas earnings, or a value-added tax on consumption, would allow the Government to receive more revenue, which could be used to provide social services to the portion of the community that would not share directly in the project benefits.

2. The Poverty Line

16. According to UNDP *Pacific Development Report 1999*, Tuvalu shows the lowest per capita GDP (US\$1,157) and the lowest human development index (0.583) among the Polynesian countries. In addition, the income distribution is uneven, with the main atoll, Funafuti, receiving a greater share. Tuvalu has no specific poverty line, but overall 50% of the population have less than US\$1.0 cash income per capita per day and most families rely on subsistence activities from their land to support their households. The 1994 household and income expenditure survey recorded an average daily per capita income of US\$2.4 per day on Funafuti and US\$1.0 in the outer islands. Furthermore, the percentage of the population with less than US\$1.0 per day was higher in the outer islands (66.5%) than in Funafuti (21.6%), while goods are more expensive in the outer islands due to their remoteness and transport costs. Moreover the outer islands are where the most vulnerable groups are concentrated—the old, the very young, and women.

3. Number of Beneficiaries/Stakeholders

17. As a result of the Project, the pool of seafarers actively involved in overseas employment will be maintained at the present level of 1,000, with around 45%, or 450, actually working overseas at any one time. Without the Project, the pool of seafarers is expected to decline over time, through attrition due to retirement and other factors, with the number of new seafarers being trained not sufficient to maintain the numbers. After 25 years, the pool would be reduced to only 470.

18. The pool of 1,000 seafarers represents about 43% of all Tuvalu males aged between 20 and 60 years; an estimated 60% of all households, or around 6,000 people, receive benefits directly from the remittance income earned by the seafarers. In the absence of the Project, this will reduce over time by at least 50%, thus about 30% of the households stand to benefit directly from the Project.

4. Impact of Benefits

19. The net increase in the level of remittance income due to the Project is estimated to total A\$3 million by the end of the project life. This is equivalent to A\$1,000 per person. No information on the distribution of poor households is available for Tuvalu, but the impact of this distribution is expected to be pro-poor, as households without the benefit of seafarer remittance income will be worse off, so any increase in the pool of seafarers (or maintaining the present number) must have a proportionally bigger impact on the poorer members of the community.

20. While most of the obvious benefits from the Project are in a monetary form, several nonmonetary benefits are apparent. The improvement in the standard of living in the outer islands or quality of life must counteract the pressure to migrate to Funafuti and further afield. Employment as a seafarer provides a combination of a tax-free, income-earning opportunity that far exceeds the remuneration from working in Tuvalu, while at the same time providing relaxation time in their home communities between jobs. While employed, the seafarers are provided with full food and lodgings that represent a saving in consumption costs that they would otherwise incur if they were not at sea.

21. The use of remittance income to purchase construction materials for building better quality housing and water collection and storage facilities in the outer islands has a positive impact on the quality of life and health. The use of the money to pay for school fees for family members to attend school in the Fiji Islands allows their children to receive a higher standard of education than they would expect to receive in Tuvalu, increasing their prospects for personal advancement and employment, while at the same time relieving government of some of its responsibilities to provide social services. More information about the use and impact of seafarer remittances is provided in Supplementary Appendix F.

SUMMARY INITIAL ENVIRONMENTAL EXAMINATION

A. Introduction

1. The proposed Project has undergone a fairly exhaustive environmental screening process, which involved site visits; consultations with project stakeholders and beneficiaries; review of documentation, charts, and photographs; and collaborative environmental design with the project engineer. The process has been sufficient to determine all possible interactions between the Project and the environment at the site.

B. Project Description

2. Detailed description of the Project is given in paras 20 to 23 of the main text of this report.

C. Description of the Environment

1. Physical Resources

3. The project has two locations: TMTI on Amatuku Island, where 90% of the project activity will be located, and the existing Marine Department offices at the main wharf on Fongafale. Amatuku Island is located in the northeast section of Funafuti Atoll, about 800 meters northwest of the tip of Fongafale, the largest island in Funafuti Atoll. The island is about 1 kilometer long by 200 meters (m) wide (at the widest point) and only 0.1 square kilometers (km²) in area. Most of the island is only about 100 m wide and only about 1.5–2 m above sea level. The highest point is only 3 m above sea level. The lowest point of the island is in the center; this area occasionally floods during spring tides and after a storm surge, which forces seawater to percolate through the coral rubble fringes around the island. The island is composed of a hard accreted coral pavement or platform, with coral rubble and sand overburden. The ocean side of the island is marked by a steep storm berm (about 3 m high) along a coral boulder and rubble beach, whereas the lagoon side is a more stable coral rubble beach, with a few sandy pocket beaches, most notably at the southwest tip of the island.

4. The freshwater aquifer on Amatuku is negligible and all freshwater requirements must be met by rainwater collection. The persistent winds at Amatuku Island and the sea spray from the ocean side create a corrosive environment on the island.

5. The blasting and excavation of about 10,000 square meters (m²) of coral reef and flat by the Americans during the war has resulted in some erosion of the rubble beach about 50 m north of the existing wharf and about 100 m of shore south of the wharf. The latter area has been protected with gabion. With the exception of the erosion on the lagoon side, induced by the reef blasting, most of the observed erosion at the tips and on the ocean side is part of the normal dynamic process of a small coral island (motu).

6. Amatuku Island is completely surrounded by fringing reef, with the exception of the area cleared off the wharf. This area is characterized by predominantly sand, some coral rubble, and a few coral patches. Beyond the fringing reef on the lagoon side, water depths are typically 20–30 m within 1–2 km of shore. On the ocean side, water depths drop off very suddenly. Maximum tidal range in Funafuti is about 2 m. Water quality at Amatuku Island is very good, as the water exchange over the reef rim north and south of the island is considerable during high tide.

7. The location for the shipping service office extension is the wharf area on Fongafale. This area has no distinctive physical features, having been built up over the last 20 years.

2. Ecological Resources

8. Amatuku Island is quite heavily vegetated compared with other islands in Funafuti Atoll. Forest cover is estimated at 80%. Amatuku Island has no mangrove trees.

9. The only birds which might nest on Amatuku are the white tern and the black-naped tern. The only terrestrial animals that are known to live on Amatuku Island are lizards. Pigs are kept in pens at the northern tip of the island.

10. The island is surrounded by a fringing reef, except in the area near the wharf. Live coral cover in the rubble areas near the wharf is only about 5%. The reef flat on the lagoon side is about 100 m wide and defined by a narrow reef slope at about 5 m water depth. On the ocean side, the reef, being much more exposed, is characterized by a spur-and-groove formation. The reef flat on the lagoon side is not that productive, with only a few small coral patches.

3. Human and Economic Development and Quality of Life Issues

11. The situation on Amatuku Island, being dedicated to specialized postsecondary training, is artificial, compared with all the other islands in Tuvalu, and standard descriptions of human and economic development do not apply. All residents are either salaried and provided for, or fully subsidized by the Government as trainees, and also provided for.

12. The land occupied by TMTI is on long-term government lease from private landowners. No apparent issues are related to the lease. The southern end of Amatuku Island (about 100 m long) is still privately held and the motu immediately to the north is also in private hands.

13. At the other project location, the Marine Department located at the main wharf, office conditions can be described as cramped, dark, hot, and not at all suited to effective and productive work. Despite these conditions, the port and shipping services for Tuvalu are delivered. The proposed upgrading of these offices will greatly enhance working conditions for shipping service staff.

D. Screening of Potential Environmental Impacts and Mitigation Measures

14. The Project will only increase the building footprints (land area occupied by the buildings) of the residential and training areas by 8%. The buildings will be built within the existing compound of the training center. No additional land lease will be required. Four coconut palm trees will be cut down. The office extension of the Marine Department will use the present location and will involve refurbishment of the existing office space and addition of a second story extension. The wharf will be built in a sandy area at least 40 m from the nearest reef flat.

15. During construction the residents and students will be inconvenienced by the noise from the construction activities and may have to move around the existing and completed facilities for safety reasons especially when the additional stories are built. To minimize the inconvenience, the construction activities are staged over a 2-year period allowing completion and use of a building prior to renovation of the next building. This problem is short term and temporary. Once the rehabilitation is completed, the residents and students will have better training facilities, and utilities such as water supply, toilets, electricity, and communications. The existing septic

systems will be expanded. Part of the electricity supply will use solar cells. With the additional boarding facilities, trainees and staff will no longer have to commute between Amatuku and Fongafale. During reconstruction of the wharf facilities, temporary boat loading and unloading facilities will be established. The temporary facilities are expected to be in use for 3 to 4 months. Construction crew and laborers will be recruited from the local population. The construction crew is estimated to range from 20 to 30 persons. Waste materials from the construction site as well as demolition debris will be disposed of at the landfill site in Fongafale.

16. The environmental impacts during operation of the facilities are mostly positive, specifically on improved safety and health conditions in the houses, dormitories, and training facilities.

E. Institutional Requirements and Environmental Monitoring Program

17. No specific environmental monitoring program has been designed, since the engineering design and the proposed construction techniques and implementation schedule will be contractual requirements of the successful contract bidder. The independent consulting engineer will ensure, on behalf of the Government, that all environmental management covenants are adhered to. Upon completion of the construction activities, TMTI will assume full responsibility for operation of the facilities on Amatuku Island, and will adhere to the proposed environmental management practices noted in this document (Supplementary Appendix E).

F. Conclusions

18. This initial environmental examination has determined that the proposed upgrading of TMTI, and extension of shipping services offices, can be constructed and operated with no significant negative environmental and social impacts, and that environmental and social benefits should result from proper operation of the facilities. This Project can be classified as Category B (relatively small scale), not requiring an environmental impact assessment. Subject to the implementation of specified mitigation measures, the Project should be able to proceed without any significant negative effects.

ECONOMIC AND FINANCIAL ANALYSES

A. General Assumptions

1. Project costs are estimated based on the prices current in October 2001 and are expressed in A\$, the currency used in Tuvalu, but have been adjusted to the most updated US\$ exchange rate of US\$1.0 = A\$1.76. The appreciation of the Australian dollar over the American dollar during the first half of 2002 naturally has implications for the project costs, but the sufficient contingencies should counter any shortfall. The total project baseline cost is estimated at about US\$2.1 million. The allowance for price contingencies over the 3-year implementation period is 2.4% for foreign costs and 2.5% for local costs per year. Physical contingencies vary from 5.0% to 27.5% for the various items of infrastructure and equipment according to the degree of uncertainty in estimating their costs. Total estimated Project cost, including physical and price contingencies and interest and commitment charges, is US\$2.3 million. The Project will be implemented over 24 months.

2. Currently, Tuvalu Maritime Training Institute (TMTI) conducts three classes of maritime training; this is expected to continue in the future.

- (i) A 1-year residential basic training course is available for new entrants before employment at sea. Currently TMTI takes in 60 trainees per year in three intakes of 20; normally 50 complete the course and graduate. Four months is spent undergoing sea training on the *Nivaga II*.
- (ii) Upgrade courses of 3 weeks duration are provided for basic fire fighting, safety, and sea survival training. This course is normally provided once during the career of a seafarer within the first 2 to 3 years of employment. The upgrade allows the seafarers to move up the pay scale and receive an immediate increase in pay.
- (iii) Revalidation and refresher course are available for seafarers. Each seafarer is required to revalidate his certificate every 5 years to maintain his employment status under the Convention on Standards of Training, Certification, and Watchkeeping of 1995 (STCW 95). The course normally lasts 1 week and involves fire fighting, sea safety and tanker skills, with the objective to refresh the seafarers skills allowing for changes in technology and competency requirements. On average, around 150–200 seafarers require revalidation per year.

3. The main benefit from the Project is that it will allow TMTI to continue to be an accredited maritime training institution maintaining its White List status. Sometime before 2005, the International Maritime Organization (IMO) will conduct its external audit of all maritime schools around the world. TMTI's accreditation to the White List was primarily based on a desk appraisal conducted by TMTI. A regional inspection by the maritime division of the Secretariat of the Pacific Community (SPC) was carried out in May 2002. TMTI must be seen as addressing its teaching and training deficiencies right now to show IMO that its external inspection should be conducted at the appropriate time. The economic benefits from the Project can be expressed as the difference in remittances from a constant pool of 1,000 seafarers, of which 45% are active, over a declining number in the pool because fewer Tuvaluans can be trained overseas. In this case, the with-project situation is the continuing operation of TMTI with an increase in the number of trainees that graduate each year and the provision of upgrading and revalidation course to the pool of 1,000 active seafarers. The without-project situation is that TMTI loses its White List status, is no longer an accredited maritime training institute and has to close down.

The Government would then be faced with having to send its young men to a suitable training institution overseas. Upgrade and revalidation short courses would also have to be conducted overseas. The result would be that a reduced number of Tuvaluans would be trained and that the pool of trained seafarers would reduce over time, as they retire or give up employment as seafarers, with a consequent reduction in the amount of their earnings remitted back to Tuvalu.

B. Economic Analysis

4. The economic analysis of the Project for the rehabilitation and upgrade of TMTI has been carried out following the normal benefit-cost analysis methodology based on the with-project minus without-project scenario to indicate the net economic benefits to the Tuvalu economy over the life-span of the Project, which is assumed to be 25 years. Economic performance is measured by the economic internal rate of return (EIRR) and the economic net present value at the chosen discount rate of 12%. A sensitivity analysis is applied to test the robustness of the results to changes in the basic assumptions.

5. The capital investment costs are converted to their economic equivalent allowing for any transfer payments, taxes and duties, and the effects of inflation. The incidence of taxes and duties is very low for the project capital costs, as most construction items are imported duty free. The only significant tax is the 2.5% sales tax, which is assumed to apply to most capital costs. The economic costs of the Project, produced as an output from COSTAB, indicate an overall conversion factor of 0.968 for the project baseline costs of US\$2.04 million.

6. A least-cost analysis was carried out to compare the costs with a realistic overseas training institution. In this analysis, only New Zealand has been compared as the only realistic alternative. The training school in Kiribati is political unacceptable to the Government of Tuvalu. The maritime training college in The Fiji Islands has also been left out of the analysis, as it would require considerable investment to accept additional seafarers. The maritime training school in Madang, Papua New Guinea, only caters for education at officer level. The Philippines, with the most maritime training institutes in the region, has also been discounted as an option, as the number of training schools not meeting, or will not be able to meet the IMO standards, are expected to be considerable and hence the country have much less capacity to accept trainees from abroad. The opportunity cost of the trainees time while receiving their training is assumed to be zero as employment opportunities for young men in Tuvalu are very limited.

7. The result of the least cost analysis is shown in Table A9.1

Table A9.1: Least-Cost Analysis Comparison of Upgraded TMTI and Training Overseas.
(A\$'000)

Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 8	Year 9	Year 10	Year 25
A. TMTI Upgrade	634.0	2,901.0	517.0						
Technical assistance	189.0	164.0	159.0						
Govt. contribution 15%	34.0	29.0	28.0						
Subtotal	857.0	3,094.0	704.0						
Operating Costs									
Salaries, Admin. & Management			340.0	679.0	679.0	679.0	679.0	679.0	679.0
Maintenance				80.0	80.0	80.0	80.0	80.0	80.0
Equipment Replacement				25.0	50.0	50.0	50.0	50.0	50.0
Total (A)	857.0	3,094.0	1,044.0	784.0	809.0	809.0	809.0	809.0	809.0
Net Present Value @ 12% = 9,470.57									
B. Overseas Training 90 Participants 10% Contingencies		640.0	640.0	1,280.0	1,280.0	1,280.0	1,280.0	1,280.0	1,280.0
Total (B)		704.0	704.0	1,408.0	1,408.0	1,408.0	1,408.0	1,408.0	1,408.0
Net present value @ 12% = 9,770.52									

TMTI = Tuvalu Maritime Training Institute.

Notes:

TMTI rehabilitation. Total loan US\$1.85 million (A\$3.256 million), ADB funds 80%, Tuvalu Government 20%. Loan condition: term 32 years with 8-year grace period, then payable over 24 years. Interest rate 1% during grace period, 1.5% thereafter. Associated technical assistance: US\$291,000 (A\$512,000) grant, Tuvalu Government contribution 15% (A\$95,500)

Overseas training in New Zealand. Conducted by the New Zealand Maritime School, Auckland. 50 week course with 34 weeks in New Zealand and 16 weeks sea-training in Tuvalu on the Nivaga II. Fee NZ\$12,000 per Trainee. Two return airfares Tuvalu-Auckland-Tuvalu at NZ\$2,250 each = NZ\$4,500. 90 trainees per year.
Source: Asian Development Bank estimates.

8. The main benefit from the Project is the maintenance of the level of remittance income at more or less the current level, compared with the without-project situation where the number of seafarers will decrease over time with a corresponding reduction in their remittances. In the with-project situation, the available pool of seafarers is stable at around 1,000, similar to the present numbers, while in the without-project situation the pool of seafarers reduces by half over 20 years as a result of the lower number of new seafarers trained each year. Consequently, net economic benefits will increase over time to reach A\$3.8 million per year after 25 years, as the divergence between the size of the pool of available seafarers increases with time. An average monthly wage of US\$762 for a Tuvaluan seafarer has been used based on the records from the German shipping agents based in Tuvalu. These same records show that on average 75% of these wages are remitted back to Tuvalu.

9. The results of the base case, using the assumptions noted above returns an EIRR of 18.15%. The economic net present value at a discount rate of 12% is A\$3.25 million. This

indicates that the Project is a worthwhile investment for Tuvalu from an economic perspective, as it exceeds the EIRR hurdle of 12%. The calculation for the EIRR is shown in Table A9.2.

Table A9.2: Calculation of Economic Internal Rate of Return
(A\$'000)

Year	Capital Costs and Associated TA	Operation and Maintenance Costs	Economic Benefits	Net Economic Benefits
1	857.0		0.0	-857.0
2	3,094.0		0.0	-3,094.0
3	1,044.0		0.0	-1,044.0
4		784.0	918.0	134.0
5		809.0	1,176.0	367.0
6		809.0	1,417.0	608.0
7		809.0	1,643.0	834.0
8		809.0	1,852.0	1,043.0
9		809.0	2,045.0	1,236.0
10		809.0	2,238.0	1,429.0
11		809.0	2,399.0	1,590.0
12		809.0	2,560.0	1,751.0
13		809.0	2,737.0	1,928.0
14		809.0	2,818.0	2,009.0
15		809.0	2,963.0	2,154.0
16		809.0	3,076.0	2,267.0
17		809.0	3,188.0	2,379.0
18		809.0	3,237.0	2,428.0
19		809.0	3,333.0	2,524.0
20		809.0	3,430.0	2,621.0
21		809.0	3,510.0	2,701.0
22		809.0	3,591.0	2,782.0
23		809.0	3,673.0	2,864.0
24		809.0	4,655.0	3,846.0
25		809.0	4,655.0	3,846.0
				Economic internal rate of return (EIRR) =18.15%

Source: Asian Development Bank estimate.

10. The robustness of the economic results can be tested in a sensitivity analysis of changes in the main assumptions concerning costs and benefits. The results are displayed in Table A9.3.

Table A9.3: Results of Sensitivity Analysis

Item/Variable	Base Case Assumption	Change	ENPV (A\$'000)	EIRR (%)	Sensitivity Indicator ^a	Switching Value ^b (%)
Base Case			3,251	18.15		
Project Capital costs (incl. Technical Assistance)	A\$4.6 m	+10%	2,854	17.08	-1,12347	77.5%
TMTI Annual Operation and Maintenance Costs	A\$809,000 per annum	+10%	2,813	17.32	-1,34728	72.1%
Percentage of Seafarers' Income Remitted to Tuvalu	75% of salary. (US\$760 per month)	-10%	2,090	16.11	-3,57121	-27.2%
Worst-Case Scenario						
Capital Cost	A\$4.6 m	+10%			ENPV declines by	
O&M	A\$809,000	+10%	1,254	14.33	61.4%	
Remittances	75%	-10%				

EIRR= economic internal rate of return, ENPV = economic net present value, O&M = operation and maintenance, TMTI = Tuvalu Maritime Training Institute.

^a Percentage change in value with percentage change in project worth ENPV.

^b Percentage change in variable for ENPV to become zero.

Source: Asian Development Bank estimate.

11. The sensitivity analysis shows that the Project is robust, the worst case scenario still gives an EIRR of 14.33%. The percentage of seafarer earnings that are remitted back to Tuvalu is an important variable. It will be important for TMTI to ensure that full use is made of the upgraded facilities and that the expected number of new entrants are trained each year.

C. Financial Analysis

C. Impact of Increased Trainee Numbers

12. In assessing the impact of the proposed upgrading program on the annual operating expenditure, two situations were investigated. The first is the continuation of the same number of new entrants as at present (60 trainees full time per year for their pre-sea training), plus 150 trained seafarers for short-term refresher courses. The second situation or scenario investigated is an increase in new entrants by 50% to a total of 90 trainees per year, plus the same quota of 150 seafarers attending refresher courses (demand-supply analysis is in Supplementary Appendix D).

D. Maintenance at Present Levels of Trainee Numbers

13. The main impact on the operating budget will be the implication of increased maintenance arising from the capital expenditure for rehabilitation and upgrading to ensure that the new infrastructure and equipment is kept in good condition. It can also be assumed that the staffing levels will be maintained at the required level to meet the training needs, which implies that any current vacancies are filled, such as the position for a remedial English teacher, and that consumable materials for teaching are kept up to date and replenished as needed. For this scenario, the proposed budget for 2001 that was prepared by TMTI indicates the likely expenditure and funding required, with the addition of increased maintenance. Under this

scenario the annual budget for TMTI will be about A\$450,000, plus whatever extra salary package top-ups are required for the contracted expatriate staff.

E. Increased Number of Trainees

14. Increasing the number of new trainees by 50% from the present 60 per year to 90 will increase the operating costs of TMTI, through the increase in teaching resources and staff and the direct cost of the residential trainees—food, uniforms, and allowances. An analysis of the current operating expenses for TMTI and the projected budget for 2002 indicates that the full complement of teaching staff costs (with no vacant positions) would cost A\$107,000 per year, while the other training expenses cost a total of A\$102,000, allowing for food, clothing, allowances, and materials, making a total of A\$209,000.

15. The average cost per trainee (the direct training costs that are related to the number of trainees) is A\$3,483 per trainee per year. The present staff complement at full strength, with the addition of one more marine instructor, is considered to be an adequate teaching resource to train the increased number of 90 trainees. Adding one more instructor would increase the teaching staff costs to an estimated A\$117,000 per year. The other costs (rations, uniforms, materials, etc.) could be expected to increase in direct proportion to the current costs by 50%. Consequently, direct training costs would increase to A\$270,000 per year. Combined with the other cost items, the overall budget for TMTI with the increased number of trainees would increase to A\$499,200.

16. The increased number of trainees would increase the basic operating costs of TMTI to almost A\$500,000 per year, compared with the comparable cost of around A\$400,000 per year in the present situation.

17. In addition, costs for debt servicing will increase for TMTI because of the ADB loan. Although TMTI may not be required to service the debt directly, it can be factored into the costs of running the institution to indicate the total cost and the change from the present situation. For example, the debt repayment obligation for the ADB US\$1.85 million loan (A\$3.3 million) repayable over 24 years with a nominal interest rate of 1.5%, would involve an annual debt-servicing cost of A\$175,000 per year following the end of the 8-year grace period. The commitment fee of 1% during the grace period would cost around A\$33,000 per year during the first 8 years.

18. The other important issue is the support for the top-up of the employment package for the expatriate staff, particularly for the Captain Superintendent position, which is currently being funded by the New Zealand Overseas Development Assistance program. New Zealand is not committed to continue to fund this position indefinitely, and alternative sources of funding will probably be required to continue to fund this position at the present level of support. The situation with the other two positions, which are staffed by expatriates, is more secure as the chief officer position is filled by the employment agencies and the chief engineer position is supported internally by TMTI. Ideally, TMTI should be able to fund its staff complement without having to rely on external assistance.

F. Maintenance Costs

19. The new capital expenditure proposed for upgrading TMTI has implications for the level of operating expenditure and increased maintenance requirements. Without the upgrading of its facilities, TMTI will be unlikely to be able to maintain its White List status, jeopardizing the

continuing employment of Tuvaluan seafarers; so, the only option is to incur the capital expenditure for upgrading the facilities. In the future, the objective will be to allocate sufficient funds to maintenance to keep the infrastructure in good condition and avoid the need for periodic injections of capital to catch up with deferred maintenance. The proposed capital expenditure budget of US\$2.3 million (A\$4 million), which will be mostly made up of buildings and housing, will require TMTI to commit to a more realistic maintenance program to maintain the new infrastructure.

20. Total annual maintenance is estimated to be US\$80,000 per year, including maintenance for the extension of the office for the marine department at the main wharf. This is considerably more than TMTI has allocated for maintenance in the past, and highlights the importance of adequate maintenance to ensure that the assets are maintained in good condition over their full economic life. If well maintained, the buildings and houses should last for 25 years or more. The order of maintenance expenditure indicated in the table will probably not be required every year, especially while the facilities are new, but an important issue for the operation of the institute is that sufficient funds should be available for maintenance when needed. The design of the new facilities and buildings incorporates durable and noncorrosive materials such as wood, aluminium, and treated steel that is resistant to deterioration through exposure to salt air in the very corrosive environment of Amatuku where TMTI is situated. While the cost of more durable materials adds to the initial capital costs, it will reduce the future ongoing maintenance requirements, and ensure that the facilities function for their full planned economic life.

21. TMTI has recently proposed the introduction of a user-pay system for its training and especially for its revalidation courses. The Government has in principle agreed to such a system being introduced. TMTI is expected to be the first institution to introduce the user-pay system in 2003.