

**ASIAN DEVELOPMENT BANK**  
**Operations Evaluation Department**

**PROJECT PERFORMANCE EVALUATION REPORT**

**FOR**

**PAPUA NEW GUINEA**

In this electronic file, the report is followed by Management's response.



# Performance Evaluation Report

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Project Number: PPE: PNG 26185  
Loan Number: 1224-PNG(SF)  
July 2006

## Papua New Guinea: Higher Education Project

Operations Evaluation Department

Asian Development Bank

## CURRENCY EQUIVALENTS

|        |   | Currency Unit – kina (K)      |  |  |
|--------|---|-------------------------------|--|--|
|        |   | At Appraisal<br>(22 May 1992) | At Project Completion<br>(30 September 2001) | At Operations Evaluation<br>(31 July 2005) |
| K1.00  | = | \$1.04                        | \$0.26                                       | \$0.33                                     |
| \$1.00 | = | K0.96                         | K3.81  | K3.06                                      |

## ABBREVIATIONS

|        |   |  |
|--------|---|--|
| ADB    | – | Asian Development Bank                                       |
| AES    | – | Academic Excellence Scholarships                             |
| AusAID | – | Australian Agency for International Development              |
| CHE    | – | Commission for Higher Education                              |
| EA     | – | executing agency   |
| EMIS   | – | education management information system                      |
| GER    | – | gross enrollment rate  |
| GPA    | – | grade point average  |
| HECAS  | – | Higher Education Contribution Assistance Scheme              |
| MDG    | – | Millennium Development Goal                                  |
| MUCIA  | – | Midwest Universities Consortium for International Activities |
| NDOE   | – | National Department of Education                             |
| NER    | – | net enrollment rate  |
| NHEP   | – | National Higher Education Plan                               |
| OED    | – | Operations Evaluation Department                             |
| OEM    | – | Operations Evaluation Mission                                |
| OHE    | – | Office of Higher Education                                   |
| PCR    | – | project completion report                                    |
| PIU    | – | project implementation unit                                  |
| PNG    | – | Papua New Guinea   |
| PPER   | – | project performance evaluation report                        |
| SIMS   | – | social impact monitoring system                              |
| TA     | – | technical assistance   |
| TESAS  | – | Tertiary Education Study Assistance Scheme                   |
| UOG    | – | University of Goroka   |
| UOT    | – | University of Technology                                     |
| UPNG   | – | University of Papua New Guinea                               |

## NOTES

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

### Key Words

development effectiveness, outcome/impact indicators, impacts on MDGs, impacts on poverty reduction, expatriate lecturers, graduation rate, cohort survival rate, governance issue.

|                  |   |
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**Operations Evaluation Department, PE-685**

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The guidelines, formally adopted by the Operations Evaluation Department (OED) on avoiding conflict of interest in its independent evaluations, were observed in the preparation of this report. S. Lohani, international consultant, managed a local team of facilitators and enumerators, conducted field surveys, and prepared survey tables and background analysis as inputs. The Team Leader prepared this Project Performance Evaluation Report based on the consultant's inputs and other sources of materials. The consultant was not involved in the Project. To the knowledge of the management of OED, there were no conflicts of interest of the persons preparing, reviewing, or approving this report.

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## BASIC DATA

### Higher Education Project (Loan 1224-PNG[SF])

#### Project Preparation

| TA No. | TA Name  | Type        | Person-Months | Amount <sup>a</sup> (\$) | Approval Date |
|--------|--|-------------|---------------|--------------------------|---------------|
| 1864   | Institutionalization of Social Impact Analysis in Higher Education | Advisory TA | 15            | 450,000                  | 1 April 1993  |

| Key Project Data (\$ million) | As per ADB Loan Documents | Actual |
|-------------------------------|---------------------------|--------|
| Total Project Cost            | 28.0                      | 25.3   |
| Foreign Exchange Cost         | 19.9                      | 14.9   |
| Local Currency Cost           | 8.1                       | 10.4   |
| ADB Loan Amount/Utilization   | 19.9                      | 14.9   |
| ADB Loan Amount/Cancellation  |                           | 5.0    |

| Key Dates                            | Expected    | Actual             |
|--------------------------------------|-------------|--------------------|
| Fact-Finding                         |             | 20 Mar–10 Apr 1992 |
| Appraisal                            |             | 22 May–5 Jun 1992  |
| Loan Negotiations                    |             | 29 Sep–2 Oct 1992  |
| Board Approval                       |             | 1 Apr 1993         |
| Loan Agreement                       |             | 25 Jun 1993        |
| Loan Effectiveness                   | 23 Sep 1993 | 2 Mar 1994         |
| First Disbursement                   |             | 27 Sep 1994        |
| Project Completion                   | 31 Dec 1998 | 30 Sep 2001        |
| Loan Closing                         | 30 Jun 1999 | 22 Jul 2002        |
| Months (Effectiveness to Completion) | 63          | 91                 |

|                         |   |
|-------------------------|---|
| <b>Borrower</b>         | Papua New Guinea  |
| <b>Executing Agency</b> | Originally the Commission for Higher Education, later changed to the Office of Higher Education |

#### Mission Data

| Type of Mission                    | No. of Missions | No. of Person-Days |
|------------------------------------|-----------------|--------------------|
| Fact-Finding                       | 1               | 30                 |
| Appraisal                          | 1               | 80                 |
| Project Administration             |                 |                    |
| Inception                          | 1               | 16                 |
| Review                             | 8               | 148                |
| Project Completion                 | 1               | 42                 |
| Operations Evaluation <sup>b</sup> | 1               | 30                 |

ADB = Asian Development Bank, No. = number, TA = technical assistance.

<sup>a</sup> Approved amount.

<sup>b</sup> Comprising S. Hutaserani (Mission Leader and Principal Evaluation Specialist) and S. Lohani (Staff Consultant and Education Evaluation Specialist), who visited Papua New Guinea on 8–22 July 2005.

## EXECUTIVE SUMMARY

During the early 1990s, the critical shortage of professional human resources was identified as a major constraint on the development of Papua New Guinea (PNG). The education system was inefficient, with a high unit cost per student because of (i) heavy dependence on foreign staff, (ii) shortage of well-trained local staff, (iii) uneconomical enrollment, and (iv) fragmented institutions. The Government introduced reforms to rationalize the primary and secondary school system. Based on its National Higher Education Plan I (NHEP-I, 1990), the Government also intended to rationalize higher education by improving teacher education and, thus, the quality of school education.

At the request of the Government, the Asian Development Bank (ADB) provided an advisory technical assistance (TA) in conjunction with the Project, without any project preparatory TA. The NHEP-I and Education Sector Study (1991) provided the basis for project design. The project objectives were to (i) improve the quality and efficiency of the higher education system, and (ii) help improve school education by improving teacher education. The project components were (i) academic improvement of the country's four public universities; and (ii) institutional capacity development, consisting of reorganization and staff development of the Office of Higher Education (OHE), which acted as the secretariat for the Committee for Higher Education (CHE).

The original Executing Agency (EA) was CHE. Following the OHE restructuring, the OHE director general became the project director. The project implementation unit was set up within OHE. Estimated at 5 years and 3 months, project implementation took 7 years and 7 months. The extension by 28 months was caused by weak project management, with delays in (i) appointing a project manager; (ii) initiating project activities because the project manager resigned 5 months after his appointment, and no one was appointed until 8 months later; (iii) providing counterpart funds and counterpart staff; (iv) signing contracts with the consortium abroad for administering the staff development program; and (v) implementing project activities because the second project manager resigned.

While the Project has been relevant to the Government's development strategy and ADB's country and education strategies, it is rated partly relevant because of weak project design associated with (i) lack of close coordination with key funding agencies in the education sector to link the project activities and results to the school system, (ii) the EA's lack of involvement in project design as the EA was later changed from CHE to OHE, (iii) lack of a working relationship between CHE/OHE and the National Department of Education, which was responsible for school education, and (iv) lack of focus on teacher education.

Because the project scope was greatly reduced, project outputs (e.g., long- and short-term overseas and in-country fellowships and use of specialist services) were well below appraisal targets. The resulting outcomes were minimal (e.g., a slight increase in the average graduation rate of project universities from 49% during the Project to 60% after). The Project is rated less effective in achieving outcomes.

The Project is rated less efficient in resource use because it did not require any commitment from the fellowship awardees who did not return to the universities. The unit cost per student in public universities financed by the Government has been high compared with that in other developing countries. Although high unit cost tends to result in high education quality, it was not the case for this Project.

The project universities were able to implement the student pay scheme for cost recovery, which allowed them to increase the proportions of tuition fees and incomes from other sources. Although this resulted in reduced Government contributions (from 88% of their total recurrent

budgets to 63% during 1993–2004), the proportion is still high. The Government's allocation to higher education increased from 13% to 20% of the total recurrent budget for education during 1993–2004. This resulted in a high unit cost per student, but student quality did not improve much. With generally low project efficiency, sustainability is rated less likely. The universities should try to depend less on Government financing.

In sum, the overall project rating is partly successful since the Project is found to be (i) partly relevant because of weak project design, (ii) less effective in achieving outcomes because of the much-lower-than-target achievement of outputs, (iii) less efficient in resource use because of low cost-effectiveness, and (iv) less likely sustainable since dependence on government financing remained high while student quality did not improve much.

Four key needs emerged from the evaluation: (i) to rationalize the entire education system to improve the links between the higher education and school education subsystems and increase the private sector's role, (ii) to improve the selection criteria of the higher education scholarship scheme to be more pro-poor, (iii) to increase transparency and accountability in the selection procedure of the scholarship scheme, and (iv) to increase efficiency in the use of expatriate lecturers.

The following are some key lessons derived from the evaluation:

- (i) To avoid piecemeal results in the sector, policy dialogue should be conducted with concerned funding agencies during project formulation.
- (ii) To increase the relevance of future project designs, each project needs a preparatory TA to carry out detailed sector analysis and needs assessment.

OHE has been engaged in preparing the NHEP-III (2006–2010). OHE has agreed with the Operation Evaluation Mission to carry out the following follow-up actions by the end of December 2006 as part of the NHEP-III:

- (i) Develop a framework to rationalize the entire education system to (a) improve links between higher education and school education, with well-defined roles of key agencies; (b) improve the role and/or quality of private providers of higher education; and (c) provide guidelines to develop an education strategy.
- (ii) Prepare OHE strategic guidelines to (i) institutionalize the social impact monitoring system and/or education management information system, (b) improve OHE staff capacity, and (c) include estimates of financial requirements.
- (iii) Review the strengths and weaknesses of Tertiary Education Study Assistance Scheme and suggest ways to (a) make its selection criteria more pro-poor, and (b) increase transparency and accountability in the selection procedure.
- (iv) Request all universities to provide information on their current and planned use of expatriate lecturers, and carry out policy dialogue with the universities and concerned government agencies to prepare a strategy to ensure optimal use of expatriates (including skills transfer).

Bruce Murray  
Director General  
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## I. INTRODUCTION

### A. Evaluation Purpose and Process

1. The Higher Education Project in Papua New Guinea (PNG)<sup>1</sup> was selected as part of the annual random sample of completed projects post-evaluated by the Operations Evaluation Department (OED) of the Asian Development Bank (ADB). The Operations Evaluation Mission (OEM)<sup>2</sup> visited PNG during 8–22 July 2005, about 4 years after the Project had been completed. This provided a sufficient basis for evaluating project performance.

2. This project performance evaluation report (PPER) draws on (i) a review of project documents and other relevant studies from ADB, other funding agencies, and the Government; (ii) discussions with ADB staff, officials of concerned government agencies, and other funding agencies; and (iii) field surveys and focus group discussions with project beneficiaries, including university rectors and lecturers as well as principals and teachers of some schools. A copy of the draft evaluation report was circulated among the concerned departments of ADB and of the Borrower. Their comments have been incorporated and acknowledged where relevant.

3. The project completion report (PCR), prepared by the Pacific Regional Department in December 2002, rated the Project partly successful mainly because of the substantial reduction in scope and outputs. While the outputs of long- and short-term overseas fellowships reached about 90% of the targets, those of the long- and short-term in-country training reached less than 20% and 10%. While the use of specialist services for project-related activities reached over 90% of the target, the use of incoming staff for long-term academic services reached only about 30%. Although the PCR focused on assessing the project outputs rather than outcomes, this PPER agrees with the PCR's overall rating because, with such a reduction in the outputs, the Project was unlikely to achieve the expected outcomes and/or impacts.

### B. Project Objectives and Expected Results

4. The project objectives were to (i) improve the quality of the higher education system in response to PNG's human resources development needs; (ii) improve the efficiency and cost-effectiveness of the higher education system by rationalizing administration and management; and (iii) help improve school education by enhancing the quality of teacher education, particularly for secondary schools. The project components were (i) academic improvements<sup>3</sup> (including overseas and in-country fellowships, incoming academic staff, specialist services, and staff housing) for the country's four public universities<sup>4</sup>—the University of Papua New Guinea

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<sup>1</sup> ADB. 1993. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to Papua New Guinea for Higher Education Project*. Manila (Loan 1224-PNG[SF], for \$19.9 million, approved on 1 April). Since 1981, ADB provided three education projects, but in three different subsectors: technical education, higher education, and nonformal education.

<sup>2</sup> The Mission comprised S. Hutaserani (Mission Leader and Principal Evaluation Specialist) and S. Lohani (Staff Consultant and Education Evaluation Specialist), who visited PNG during 8–22 July 2005.

<sup>3</sup> The first component was originally referred to as "institutional activities" and the second component as "coordination and support". However, it was the second component that focused on institutional capacity development (e.g., improvement in institutional structure and management capacity of the Office of Higher Education). To avoid confusion, the first component was renamed "academic improvements" and the second component, "institutional capacity development".

<sup>4</sup> PNG has 4 public universities, 2 private universities, and about 20 other public and private postsecondary institutions (including teacher colleges, technical/business colleges, and nursing colleges). Student enrollments in these three types of institutions in 2004 were 6,760, 1,277, and 6,677, respectively. Of the six universities, enrollment in the four public universities dominated, accounting for 84% in 2004.

(UPNG), University of Technology (UOT), University of Vudal, and Goroka Teacher College (now University of Goroka [UOG]); and (ii) institutional capacity development, consisting of reorganization of the Office of Higher Education (OHE) and staff development for OHE and the Committee for Higher Education (CHE).<sup>5</sup>

5. The project framework did not identify clear outcome/impact indicators because of confusion between output and outcome indicators. For example, the project framework listed the objectives as the project goals and identified the following as the expected outcome/impact indicators: (i) developing in-country human resources capacity, (ii) improving teacher education to support school education, and (iii) rationalizing higher education to improve its efficiency and cost-effectiveness. However, these are project activities rather than expected results. Because of this confusion, the PCR focused on assessing the achievement of project outputs rather than outcomes. Given the lack of outcome/impact indicators in the project framework, this PPER has to identify relevant outcome/impact indicators to be able to assess the Project's effectiveness (para. 30).

## **II. DESIGN AND IMPLEMENTATION**

### **A. Formulation**

6. The Project was formulated in accordance with the Government's development priorities, which focused on human resources development to achieve sustained economic growth. At the Government's request, ADB provided an advisory technical assistance (TA)<sup>6</sup> in parallel with the Project, without any project preparatory TA. The Government's National Higher Education Plan I (NHEP-I, 1990) and Education Sector Study (1991) provided the basis for project design. ADB fielded a fact-finding mission in March–April 1992 and an appraisal mission in May–June 1992 to confirm project viability and suitability for ADB financing.

7. However, project design was weak as the Project was formulated without (i) improving institutional links between CHE/OHE (under the Ministry of Higher Education, Research, Science and Technology) and the National Department of Education (NDOE), which was the ministry responsible for school education (Appendix 1, Figure A1.1); and (ii) establishing coordination with key funding agencies, especially the Australian Agency for International Development (AusAID), European Union, and World Bank, whose support to the education sector in PNG during 1993–2004 accounted for 71%, 14%, and 7%, respectively, compared with 3% from ADB (Appendix 1, Table A1.1). The lack of appropriate institutional links between higher and school education resulted in the failure of the project outputs to benefit school education (Appendix 1, Figure A1.2). The lack of coordination with key funding agencies resulted in piecemeal efforts as the project outputs were not reinforced by assistance of other agencies. The main reason for the weak project design was that no project preparatory TA carried out detailed analysis of institutional arrangements and coordination needed to design the Project more appropriately.

### **B. Rationale**

8. During the early 1990s, the critical shortage of skilled and professional human resources was identified as a major constraint on PNG's development. The education system was

<sup>5</sup> OHE performed the secretariat function for CHE.

<sup>6</sup> ADB. 1993. *Technical Assistance to Papua New Guinea for Institutionalization of Social Impact Analysis in Higher Education*. Manila (for \$450,000, approved on 1 April).

inefficient, with high unit cost per student caused by (i) heavy dependence on foreign teachers and administrators; (ii) shortage of well-trained local staff for primary and secondary schools; (iii) lack of capacity to train local staff; (iv) uneconomical enrollment, with high student attrition and low retention rates, especially in remote secondary schools; and (v) fragmented postsecondary education institutions. The Government introduced reforms to rationalize the primary and secondary education system and improve management, planning, and supervision of education. Based on the NHEP-I, the Government also planned to rationalize the postsecondary/higher education system and improve its quality and efficiency. Priority was given to improving teacher education at postsecondary teacher colleges to directly improve the quality and efficiency of primary and secondary school education. Since the Project was designed to improve the skills of professional human resources at the higher education level to benefit school education, particularly in secondary schools, it was relevant to the Government's development strategy. It was also relevant to ADB's country and education strategies, which focused on basic education at that time. Given that the focus of the Government's development strategy and ADB's education strategy remain unchanged, the Project continues to be strategically relevant.

### **C. Cost, Financing, and Executing Arrangements**

9. The total project cost at appraisal was estimated at \$28.0 million, comprising \$19.9 million in foreign exchange cost and \$8.1 million equivalent in local currency cost (Appendix 2). An ADB loan of \$19.9 million from ADB's Special Funds resources was approved to finance the entire foreign exchange cost, which was 71% of the total cost. The Government was to provide the remaining \$8.1 million equivalent to finance the local currency cost. The actual project cost (\$25.2 million) was 10% lower than the appraisal estimate (\$28.0 million). The ADB loan was reduced by 25%, from \$19.9 million to \$14.9 million, by canceling the loan surplus balance totaling \$5.0 million. The cancellation was caused mainly by renegotiation of the staff development contracts with the Midwest Universities Consortium for International Activities (MUCIA) in the United States because of the long delay in project implementation, and the devaluation of the kina in 1994 associated with PNG's economic and financial deterioration. The share of the Government increased by 28% from \$8.1 million equivalent to \$10.4 million equivalent.

10. The original executing agency (EA) was CHE. However, following the restructuring of OHE, which acted as the secretariat of CHE, the OHE director general assumed the role of project director. The project implementation unit (PIU) was set up within OHE to manage the Project's day-to-day operations. The PIU consisted of a project manager and four coordinators responsible for logistical support, finance, staff matters, and staff development. The PIU was assisted by an interagency project working group made up of representatives from CHE, the Department of Finance and Planning, UPNG, UOT, and other concerned agencies.

### **D. Procurement, Construction, and Scheduling**

11. Major equipment was procured through direct purchase procedures acceptable to ADB. No major problems were encountered in following ADB's *Procurement Guidelines*. All civil works were awarded based on local competitive bidding in accordance with the Government's standard bidding procedures acceptable to ADB. One of the universities did not follow the civil works procedure for staff housing. Another university accepted an unrealistically low tender bid for the design of the houses, which eventually led to termination of the contractor. However, the university completed the civil works on its own. OHE supervision at this stage was efficient.

12. Estimated at 5 years and 3 months, actual implementation took 7 years and 7 months. The 28-month extension was caused by weak project management, resulting in delays in (i) appointing a project manager until August 1995,<sup>7</sup> which was 17 months after loan effectiveness; (ii) initiating project activities because the project manager resigned 5 months after his appointment, and no one was appointed until 8 months later; (iii) providing counterpart funds and counterpart staff to work with international consultants, and circulating consultants' reports; (iv) signing contracts with MUCIA for administering the staff development program; and (v) implementing project activities because the second project manager resigned after 22 months.<sup>8</sup> The PIU project coordinator for staff development then unofficially assumed the role of project manager until project completion.

## **E. Design Changes**

13. The delayed project startup and subsequent implementation resulted in (i) a reduced project scope, with consultant services reduced by 38.5 person-years (19 people) for incoming academic staff and by 10 person-months for specialists; and (ii) two loan closing extensions to enable 50 staff members under overseas fellowships to complete their courses. Delayed implementation also reduced the outputs of trained staff by 10% under the overseas and 83% under the in-country fellowship programs.

## **F. Outputs**

14. The delivery of project outputs was much below appraisal targets, particularly under component A (academic improvement). As shown in Appendix 3, the actual outputs under component A included (i) 64<sup>9</sup> long-term overseas fellowships (target = 72), of which 42 completed their programs; (ii) 3 long-term in-country fellowships (target = 18); (iii) 45 short-term, overseas work attachments (target = 49); (iv) 1 short-term in-country work attachment (target = 15); (v) 9 long-term incoming academic staff for 17.5 person-years (target = 28 staff members for 56.0 person-years); (vi) 24 short-term specialists for 168 person-months (target = 24 specialists for 178 person-months); and (vii) 22 staff houses (target = 22). The reasons for the large gaps between the actual and expected outputs are assessed in detail in paras. 15–21. Component B (institutional capacity development) almost achieved the appraisal targets, including (i) increase in OHE staff positions from 22 to 42 (target = 52); (ii) other aspects of OHE's reorganization; and (iii) institutional capacity development of OHE staff, including 3 long-term overseas fellowships, 4 short-term overseas work attachments, 120 person-weeks of short-term in-country training, and 135 in-country workshops (see details in paras. 23 and 24).

### **1. Component A: Academic Improvements**

15. **Academic Staff Development.** PNG's higher education system relied heavily on the use of expatriate lecturers, accounting for 44% in the four project public universities in 1993 (before the Project started). This subcomponent aimed to improve the academic capacity of local university staff in strategic disciplines through long-term fellowships and short-term skills upgrading, both overseas and in-country. The actual outputs of this subcomponent included the

<sup>7</sup> The Project became effective on 2 March 1994, without fulfilling the condition of setting up the PIU with a project manager.

<sup>8</sup> High turnover of the project manager position until June 1998 was caused by the expatriate status of the post. The project manager did not change after the post was localized.

<sup>9</sup> Excluding three OHE staff who received and completed their doctoral and master's fellowships, but were classified under component B (institutional capacity development).

following: (i) 32 staff members<sup>10</sup> received long-term overseas doctoral fellowships (target = 23), of whom 17 completed their programs; (ii) 32<sup>11</sup> received long-term overseas master's fellowships (target = 49), of whom 25 completed their programs; (iii) 3 received long-term in-country master's fellowships (target = 18); (iv) 45 received short-term 3-month skills upgrading and/or work attachment programs overseas (target = 49); (v) 1 received a short-term 3-month skills upgrading and/or work attachment program in-country (target = 15); (vi) 60 attended in-country workshops (target = 112) to train as research supervisors, who subsequently trained 100 other staff members to do social research.

16. The outputs were much below appraisal targets, not only for the number of staff members selected for the fellowship programs but also of those who completed the programs. The main reasons were (i) a 1-year delay in signing the contract with MUCIA to administer the overseas fellowship program, such that some of the short-listed candidates had already left the country on other fellowships; (ii) an insufficient number of qualified staff members selected and able to complete the programs; (iii) an insufficient number of existing staff members to replace those who left for long-term studies; (iv) the Government's freeze on staff recruitment, which restricted the universities' capacity to hire new staff members to replace those who left; (v) escalating costs of accommodation, airfares, and other expenditures; (vi) lack of a coordinator to plan, supervise, and implement the in-country fellowship programs; and (vii) lack of suitable in-country master's programs and competent academic supervisors. One of the fellows who received an in-country fellowship had to send his research samples overseas to be tested and wait for the results to be returned before proceeding with his analysis.

**17. Long-Term Incoming Academic Staff for Improving University Teaching and Research.** This type of consultant was needed to temporarily replace some of the local university staff members who had left for long-term studies, and to develop teaching and research capacity of existing staff members to reduce the reliance on expatriates. The actual number of incoming academic staff was reduced from 28 (56 person-years) at appraisal to 9 (17.5 person-years) because of (i) the delay in setting up the PIU; (ii) the difficulties in securing counterpart funds; (iii) the difficulties faced by the contractor (MUCIA) in recruiting staff; (iv) the much higher monthly billing rates than the estimated amount (\$9,000–\$14,000 compared with \$6,500); and (v) the return of 30 fellowship holders with master's degrees from overseas, who could replace some of the remaining incoming staff.

18. Of the nine incoming academic staff members, two were provided to UOG (in computer science), three to UPNG (in biology, economics, and physics), and four to UOT (in biotechnology, computer science, environment, and mechanical engineering). Their general outputs included maintaining teaching and research functions while local university lecturers were away on study leave. Their performance was highly valued by local staff, particularly in providing training and transferring knowledge and skills. One reason for their good performance was that they were generally hired on a long-term basis (up to 2 years), allowing them enough time to accomplish their tasks and establish relationships with their local counterparts.

19. The specific outputs of these incoming academic staff members included the following: (i) at UOG, the computer consultants helped set up computer programs and develop courses; (ii) at UPNG, the biology consultant helped set up a research program to monitor coral reefs, and

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<sup>10</sup> Excluding two OHE staff members who received and completed their doctoral fellowships, but were classified under component B (institutional capacity development).

<sup>11</sup> Excluding one OHE staff members who received and completed his master's fellowship, but was classified under component B (institutional capacity development).

train university staff and students in scuba diving, while the economics and physics consultants helped design courses and set up research programs; and (iii) at UOT, the environmental consultant did outstanding work by (a) helping set up the Environmental Management and Research Center, which attracted funds for new buildings from the European Union (the consultant's successor continued the work); (b) increasing environmental awareness and improving conservation of the natural environment of the ecologically sensitive regions; (c) developing a postgraduate diploma proposal; (d) holding workshops on environmental awareness; and (e) completing, along with 13 other scientists, a biodiversity inventory for the Kamiali Wildlife Management Area (340 square kilometers belonging to the village of Lababia, Morobe province). The study prepared a baseline measurement of what existed in the area and has become a model for work of this kind. The mechanical engineering consultant helped set up the Non-Destructive Testing Center. The center is the only one of its kind in this part of the world and remains active in doing research on heavy metals and equipment, underwater pipes, and pipelines for multinational oil companies. The biotechnology consultant helped set up the Bio-Technological Center. It remains functional and is conducting research on local plants and food. The computer consultant helped design new programs and courses and prepared preliminary work for the university's education management information system (EMIS).

20. **Short-Term Specialists for Project-Related Support.** This type of consultant was deployed at various times for 1–3 months per visit to provide project-related support. While the actual number of specialists was the same as that estimated at appraisal (24), the actual number of person-months was 168 compared with 178 at appraisal because of the delay in setting up the PIU and insufficient counterpart staff to coordinate the specialists' activities. The specialists generally did good work in their assigned areas and achieved expected outputs despite the reduced person-months.

21. The specialists helped (i) develop national curriculum guidelines for the diploma in school teaching, which provided core contents for use by all teacher colleges and were written in modules to enable the transfer of credits; (ii) develop teacher education curricula; (iii) produce manuals, texts, and checklists as teaching resources for college staff and college inspectors; (iv) provide training workshops for teachers, college staff, and college inspectors; (v) prepare reports to change school and teacher inspection and assessment practices; (vi) develop instruments to assess staff development, including software; (vii) establish the School of Business Administration at UPNG and development of courses; (viii) redesign environmental courses at UPNG; and (ix) prepare 12 advisory reports, which provided useful analysis and recommendations on teacher training guidelines and curricula, development of libraries, and computerization of administration. Unfortunately, many reports were not circulated on time and recommendations were not considered because of insufficient counterpart staff. During the latter half of the Project, skills were transferred in some areas where sufficient counterpart staff members were working closely with the specialists.

22. **Staff Housing.** The outputs of this subcomponent included 12 staff houses at UPNG and 10 at UOT. The universities' building boards supervised the civil works for OHE. Although they were completed with some delays, they were highly appreciated for helping raise staff morale and retention.

## 2. Component B: Institutional Capacity Development

23. **OHE's Reorganization.** This subcomponent intended to strengthen the role of OHE from the secretariat of CHE to a leader in higher education. The outputs of this subcomponent included (i) increased staff positions from 22 in 1994 to 52, although 10 positions have not been

filled because of the freeze on recruitment, and many staff members did not have a background in higher education; (ii) provided equipment (office automation and consumables) and three vehicles (one was stolen but replaced); (iii) introduced a student pay scheme; (iv) prepared the NHEP-II, including a higher education white paper; (v) established the Distance Education Committee, the National Accreditation and Quality Assurance Committee, and the Resources Planning Committee; (vi) established the National Council for Teacher Education to coordinate and provide professional support for teacher education; and (vii) established the EMIS Oracle database and the social impact monitoring system (SIMS) at OHE to collect baseline data and monitor progress during the Project. Outputs (iv)–(vii) were achieved with the assistance of the specialist services described in para. 21. Despite its reorganization, OHE has been faced with budget and staff constraints such that the SIMS could not be implemented during the Project.

**24. OHE Institutional Staff Development.** The outputs of this subcomponent met or exceeded appraisal targets, including (i) three long-term overseas fellowships (two for a doctoral program and one for a master's), (ii) four staff members for 3-month overseas study visits on higher education management used as planned, and (iii) 120 person-weeks of short-term in-country education management courses (target = 80).

## **G. Consultants**

**25.** The PIU selected the consultants and engaged them in accordance with ADB's *Guidelines on the Use of Consultants*. MUCIA and the International Development Program of Australia were contracted to provide incoming academic staff and specialists, respectively. The consultants were fielded individually, and it was difficult for the PIU to coordinate them. Their overall performance was satisfactory despite delays in their deployment (see details in paras. 17–21).

## **H. Loan Covenants**

**26.** The Government fully complied with most major loan covenants and partly complied with two. One covenant required insurance cover for project facilities. While vehicles and staff houses at UPNG were insured, those at UOT were not. One vehicle was stolen but has been replaced. The other covenant required that the SIMS, which was established under the Project, facilitate evaluation of the Project's social impact. Although the SIMS was set up, it was not fully functioning during the Project because of OHE's staff and budget constraints. It was abandoned in 1999. However, the OEM found that it had been revived by OHE in 2003 and a SIMS report produced in 2004. The report provided information for the Project's impact evaluation.

## **I. Policy Setting**

**27.** The devaluation of the kina in 1994 and PNG's economic and financial deterioration had important impacts on project implementation: (i) severe reduction in public expenditure, including for higher education; (ii) elimination of statutory bodies; and (iii) reduction in civil servants. Such organizational and personnel changes at the ministerial level caused uncertainty and instability at the EA. Subsequently, the EA was redesignated from CHE to OHE, putting staff unfamiliar with the Project in charge of implementation. These exogenous changes also greatly delayed operationalization of the PIU to 1 year after loan effectiveness.

### III. PERFORMANCE ASSESSMENT

#### A. Overall Assessment

28. The overall project rating is partly successful since the Project is found to be (i) partly relevant because of weak project design, (ii) less effective in achieving outcomes because of the much-lower-than-target achievement of outputs, (iii) less efficient in resource use because of low cost-effectiveness, and (iv) less likely sustainable since the dependence on government financing remained high while student quality did not improve much. The rating is summarized in Table 1.

**Table 1: Overall Performance Assessment**

| Criteria                          | Assessment Results | Rating (0–3) | Weight (%) | Weighted Rating |
|-----------------------------------|--------------------|--------------|------------|-----------------|
| Relevance                         | Partly relevant    | 1            | 20         | 0.2             |
| Effectiveness                     | Less effective     | 1            | 30         | 0.3             |
| Efficiency                        | Less efficient     | 1            | 30         | 0.3             |
| Sustainability                    | Less likely        | 1            | 20         | 0.2             |
| <b>Overall Rating<sup>a</sup></b> |                    |              |            | <b>1.0</b>      |

HS = highly successful, PS = partly successful, S = successful, US = unsuccessful.

<sup>a</sup> (i) HS > 2.7; (ii) 2.7 ≥ S ≥ 1.6; (iii) 1.6 > PS ≥ 0.8; and (iv) 0.8 > US.

Source: Operations Evaluation Mission.

#### B. Relevance

29. While the Project has been relevant to the Government's development strategy and ADB's country and education strategies, it is rated partly relevant because of weak design associated with (i) lack of close coordination with key funding agencies in the education sector (e.g., AusAID, European Union, and World Bank) to link the project activities and results to the school system supported by them; (ii) the EA's lack of involvement in project design as the EA was later changed from CHE to OHE; (iii) lack of a working relationship between CHE/OHE and NDOE, which was responsible for school education; and (iv) lack of focus on teacher education and a comprehensive view on how to produce better teachers. As a result, the Project (i) did not support the academic staff of some teacher education programs of the two private universities, or NDOE's Curriculum Division, which was involved in developing the new curricula under the Project; and (ii) did not include activities to disseminate consultants' reports and recommendations on improving teacher education to NDOE.

#### C. Effectiveness

30. The Project did not define appropriate outcome/impact indicators (para. 5). This PPER identifies the following as outcome indicators: (i) increased graduation rate of students from project universities, (ii) reduced proportion of expatriate staff in project universities, and (iii) increased cohort survival rate of secondary-school students caused by the increased quality of teachers graduated from project universities. The PPER perceives these as outcome indicators because they were likely to have been achieved had the project outputs (e.g., academic

improvements of university staff and institutional capacity development of OHE) been substantially realized as expected. However, these outcome indicators, if achieved, were not a result of the Project alone, but of the combined efforts of all funding agencies active in education (Appendix 1, Table A1.1). These outcome indicators are assessed based on primary and secondary data collected during the OEM. The primary data were collected through sample field surveys of project beneficiaries. Information on the surveys is in Appendix 4, Table A4.1.

**31. Graduation Rate of Students from Project Public Universities.** The output of long-term overseas fellowships for staff development (which achieved about 90% of its target for number of staff members sent abroad, but 60% for number of those completing the courses) helped improve the quality of teaching at project universities. While the improvement could not be quantified, some qualitative indicators based on the perceptions of a sample of lecturers who had completed the fellowships suggested that most of them were able to use the knowledge acquired (52% moderately and 32% fully) (Appendix 4, Table A4.2). Their job responsibilities were also improved (40% moderately and 52% highly) (Appendix 4, Table A4.3). The sample administrators were satisfied with the performance of these staff members (75% moderately and 25% fully) (Appendix 4, Table A4.4). They also suggested ways to further improve their staff performance, especially through professional exchange and sharing, instructional materials support, and in-house training to update knowledge (Appendix 4, Table A4.5). The outputs of consultants (long-term incoming academic staff and short-term specialists), which largely fell short of their targets, were perceived by all the sample university administrators as moderately useful, but as partly effective in transferring skills to local staff. However, since the outputs of overseas fellowships and consultant services had helped improve the quality of university staff to some extent, the quality of university students was expected to subsequently improve. A measurable outcome indicator used in this case was the average graduation rate of the four project universities combined, which increased from 49% during the Project to 60% thereafter (Appendix 4, Table A4.6). The increase would have been higher had the Project been able to achieve the output targets.

**32. Use of Expatriate Lecturers in Project Universities.** Before the Project, about half of the country's public university lecturers was expatriate. A project objective was to reduce the proportion of expatriates by strengthening local academic capacity through overseas fellowships and consultant services. Expatriate salaries and allowances were about twice as high as those of local staff (Appendix 4, Table A4.7), thus incurring a lot of foreign exchange to the country. Appendix 4, Table A4.8, shows that the use of expatriates in the four public universities combined declined by more than half—from 44% at the beginning of the Project in 1993 to 18% in 2004. However, such a decline was too substantial to be attributed to the achievement of some project outputs, which largely fell short of targets. The use of expatriates was not an internal university matter but depended greatly on exogenous factors, particularly the fiscal and foreign exchange situation. The devaluation of the kina during the mid-1990s made the foreign exchange cost of expatriates much more expensive to finance. Thus, it was the devaluation, rather than the project outputs, that triggered such a huge reduction in the use of expatriates.

**33. Cohort Survival Rate of School Students.** A project objective was to improve the quality of school education by improving the quality of university students who would later become school teachers. One measurable indicator of the quality of school education is increased cohort survival rates, which capture increased pass rates and reduced dropout and repetition rates. Appendix 4, Table A4.9, shows the number of students enrolled in grades 7–12 and those who passed grade 12 during 1993–2004. Appendix 4, Table A4.10, shows the survival rates of the cohorts who entered grade 7 in 1993–2004 and survived to succeeding grades in subsequent years. As shown, the cohort survival rate from grade 7 up to the last year

of junior secondary (grade 10) even declined (from an average of 65% during the Project to 59% afterward). While the cohort survival rate from grade 7 up to the last year of senior secondary (grade 12) improved slightly (from an average of 13% to 17%), that of the cohorts who had passed the grade-12 exam remained low (averaging 8.5% during and after the Project). These data indicate that the quality of school education remains low.

34. However, regardless of whether or not school education had substantially improved, it was unlikely to have been a result of the project outputs because (i) improved teacher quality through preservice teacher training at the university level generally takes time to indirectly impact on school education; (ii) a large number of teachers would need to be trained at the university level to create a critical mass of higher-quality teachers; this was not the case for the Project, which did not focus on improving teacher education but on general higher education in many fields; and (iii) the project outputs were too small to create such a cascading impact on school education. Thus, this outcome indicator was more likely to be a result of assistance by other funding agencies, which directly supported curriculum development, provision of textbooks, in-service teacher training, and examination reform.

35. However, school management was not sufficiently improved. One problem causing low-quality schooling was related to poor governance in school management. Information obtained from the OEM field surveys in some schools revealed widespread problems of ghost teachers and teacher absenteeism. This confirmed the information from the Public Expenditure and Service Delivery Study (2004), conducted by the World Bank and the National Research Institute, which indicated that (i) 15% of the teacher posts were occupied by ghost teachers; (ii) on average, the teachers (excluding head teachers) reported to take up their posts 27 days after school started; and (iii) an average of 13% of the school year was lost because of late starts and teacher absenteeism. To improve school education, these governance problems need to be solved.

36. In sum, while the project outputs might have slightly improved the graduation rate of project universities (para. 31), improvements in other outcome indicators (reduction in the use of expatriates and slight improvement in the cohort survival rate of school education up to grade 12 [paras. 32–34]) were more likely to result from other factors outside the Project. The Project is therefore rated less effective in achieving outcomes.

#### **D. Efficiency**

37. The OEM visited some project facilities (some of the 22 staff houses built at UPNG and UOT) and found that they were well used and highly appreciated since they helped raise staff morale and retention. Of the three OHE staff members who received overseas fellowships under the Project, two returned to OHE and were promoted. Many of the university staff members who received overseas fellowships had returned to the same universities and used the knowledge gained. About 10% (6 out of 64) did not return. Overall, however, the PPER rates the Project less efficient in resource use because (i) it did not require any commitment or reimbursement from the fellowship awardees who did not return to the universities; (ii) only about 66% (42 out of 64) of the university staff members who received the fellowships completed their studies, reflecting a large resource waste; and (iii) the Project had long implementation delays. The unit recurrent cost per student in public universities financed by the Government has been high, about K3,900 in 2004 (Appendix 5, Table A5.1), compared with

other developing countries.<sup>12</sup> Although the high unit cost per student was expected to result in high-quality education, it was not the case for this Project as the education quality (project outcomes) remained low (para. 36).

## **E. Sustainability**

38. The project universities were able to implement the student pay scheme for cost recovery. This allowed them to increase the proportions of tuition fees and incomes from other sources (e.g., donations and renting out facilities) in their total recurrent budget—from 4% and 8% before the Project (1993) to 18% and 19%, respectively, in 2004 (Appendix 5, Table A5.2). Although this resulted in reduced government contributions (from 88% of their total recurrent budgets to 63% during 1993–2004), the proportion is still considered high. The Government's allocation to higher education as a proportion of its total recurrent education budget increased from 13% to 20% during 1993–2004 (Appendix 5, Table A5.1), resulting in high unit cost per student but minimal improvement in student quality (para. 37). With the generally low project efficiency, sustainability is considered less likely. The universities should try to depend less on government financing and more on their own cost recovery, while trying to increase the quality of students in the long run.

## **IV. OTHER ASSESSMENT**

### **A. Impacts**

#### **1. Impacts on Institutions**

39. The Project's institutional impacts are rated modest (partly satisfactory) for the following reasons:

- (i) The Project could not do much to strengthen CHE and rationalize the higher education system because the formation of the CHE membership was politicized (not in compliance with the Higher Education Act, which required the members to have expertise in strategic planning, finance, science, and technology). Thus, the strength of higher education management had to depend on the institutional capacity of CHE's secretariat (OHE).
- (ii) The number of OHE staff members trained overseas under the Project (three, two of whom returned to OHE) was too small to create a critical mass for significant institutional development. For example, the SIMS established by the Project could not be implemented at OHE during the Project, although it is being revived under the acting director general after project completion.<sup>13</sup> The understaffing of OHE in the past 5 years, caused by poor recruitment and the recruitment freeze in public sector employment in 2002, also deterred institutional development.

<sup>12</sup> For example, the unit recurrent cost per student in public universities in Indonesia was about \$512 equivalent, which was half that of PNG (\$1,275 equivalent, or K3,900).

<sup>13</sup> The activities initiated by OHE after project completion included (i) preparation of a SIMS report (using the 1999 survey), which provided useful data on project performance; (ii) further development of the EMIS to electronically record the OHE database; (iii) publication of annual survey report on higher education institutions; (iv) institutionalization of the Tertiary Education Study Assistance Scheme (TESAS); (v) implementation of the NHEP-II (2000–2004); and (vi) initiation of the preparation of the NHEP-III (2006–2010).

- (iii) The Project did not help improve institutional links between higher and school education.<sup>14</sup> With weak institutional impact, the Project outputs could not generate cascading outcomes and impacts to improve school education.

## 2. Socioeconomic Impacts

40. **Impact on Millennium Development Goals (MDGs).** Two of the eight MDGs are related to education—MDG 2, achievement of universal primary education; and MDG 3, promotion of gender equality and empowerment of women. MDG 2 aims to ensure that by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling. MDG 3 aims to eliminate gender disparity in primary and secondary education, preferably by 2005, and at all levels of education no later than 2015. The indicators for MDG 2 include adult literacy rate, primary gross and net enrollment rates (GERs and NERs),<sup>15</sup> and cohort survival rate from grades 1 to 5. The indicators for MDG 3 include ratios of girls to boys in primary, secondary, and higher education.

41. During 1990–2002, adult literacy increased from 45% to 65% (Appendix 6, Table A6.1). While the GER for primary education increased from 69% to 85%, the NER increased from 66% to 73%. These are low compared with those of other low-income countries.<sup>16</sup> The cohort survival rate from grades 1 to 5 remained low and roughly constant, at around 60%. The low performance in the basic education MDGs was caused by the failure in the Government's education reform package. The GER for secondary education increased from 13% to only 22%, and for higher education from 1.3% to a mere 1.6%. The very low higher education GER is confirmed by another data set collected by the OEM, which shows a low average annual growth rate of enrollment of 3.4% in the four public universities combined during 1993–2004, with a total of 6,760 students enrolling in 2004 (Appendix 4, Table A4.8). Overall, education improved slowly. The Project's impact on MDGs is rated modest (partly satisfactory) since the Project generated too few outcomes to trigger rapid progress in the basic education MDG indicators.

42. **Gender Impact.** Gender gaps existed at all levels of education. Latest data in Appendix 6, Table A6.2, show that female literacy was 51%, compared with 61% for males. The GER and NER in primary education were 70% and 69% for females compared with 79% and 77% for males. The GERs in secondary and higher education were 22% and 1% for females compared with 28% and 3% for males. These gender gaps are confirmed by another data set collected by the OEM, which shows that females accounted only for 33% of the total enrollment in the four public universities combined in 2004 (Appendix 6, Table A6.3).<sup>17</sup> The Project's gender impact is

<sup>14</sup> Although NDOE is represented on three CHE committees (accreditation and quality assurance, resource planning, and distance and flexible education), no mechanisms ensured effective links between them. The Government's attempts to rationalize the education system by developing and implementing an entire education sector strategy, based on its education sector reviews, have not been successful. Each sub-system had its own plan, independent of the others. The NDOE's National Education Plans (1995 and 2004) focused on school education, while NHEP-I (1990–1995) and NHEP-II (2000–2004) dealt with higher education.

<sup>15</sup> The GER is the enrollment of people, regardless of their ages, in a level of education as a proportion of the total number of people in the age group belonging to that level. The NER is the enrollment of people in the age group for that level of education as a proportion of the total number of people in the same age group.

<sup>16</sup> For example, in 2002, the primary education GERs for the Lao People's Democratic Republic and Nepal were more than 100%, while the NERs were 83% and 81%, respectively.

<sup>17</sup> Appendix 6, Table A6.3, also shows that the proportions of female students and lecturers in the combined four public universities (33% and 15%, respectively) were lower than in the two private universities (50% and 36%, respectively) and in other tertiary institutions (42% and 31%, respectively). For all the tertiary institutions combined, the proportions of female students and lecturers were 39% and 23%, respectively.

rated modest (partly satisfactory) since the Project did not provide special support for female students.

43. **Impact on Poverty Reduction (Equity Improvement).** The student pay scheme introduced by the Project in 1995 aimed to enable the four public universities to collect sufficient tuition fees for cost recovery. In parallel, the Project also supported the Government's subsequent scholarship scheme—the Tertiary Education Study Assistance Scheme (TESAS)—intended to improve equity in access to higher education. The TESAS consisted of (i) the Academic Excellence Scholarships (AES) for students achieving grade point averages (GPAs) of 3.6 to 4.0, (ii) the Higher Education Contribution Assistance Scheme (HECAS) for students achieving GPAs of 1.6 to 3.5, and (iii) the Self Sponsor Scheme for students not achieving GPAs of 1.6. Students under the AES, HECAS, and Self Sponsor Scheme paid K150, K1,050, and K3,750 (or 1%, 7%, and 25% of the boarding and lodging average unit cost), respectively. OHE has generally been able to institutionalize the TESAS to help many students, not only in the four public universities but also in the two private universities and other tertiary institutions. In 2004, the proportions of students receiving the TESAS in these three types of institutions were 53%, 28%, and 25%, respectively (Appendix 6, Table A6.3).

44. However, the TESAS did not have much impact on reducing poverty or improving equity because<sup>18</sup> (i) its selection criteria were not pro-poor but based on students' GPAs, without reserving a quota for poor students from remote areas; (ii) it only covered partial boarding and lodging expenses, not tuition fees; (iii) the proportion of recipient students has declined as the government allocation to the TESAS could not increase in recent years as enrollment increased; (iv) while the TESAS selection criteria were based on students' GPAs, the lack of a uniform GPA system across universities and institutions resulted in a governance problem (lack of transparency and accountability) in the selection procedure. The Project's poverty reduction impact is rated modest (partly satisfactory) since the Project did not do much to increase equity in access to higher education by the poor.

### 3. Environmental Impact

45. The Project's environmental impact is viewed as positive since the Project helped develop some teaching and research programs related to environmental studies (paras. 18–19). Staff houses at UPNG and UOT were built within the existing premises, without the need for land procurement or involuntary resettlement and with attention to the environment.

### B. Asian Development Bank and Borrower Performance

46. ADB performance is rated partly satisfactory because of weak project management, particularly in the initial implementation period, as reflected in (i) the declaration of loan effectiveness (in March 1994) long before the project manager was appointed (in August 1995) even though this was a condition of loan effectiveness, (ii) insufficient number of supervisory missions (only once a year in 1994–1995), and (iii) significant reduction in the project scope. However, ADB performance improved toward the end of project implementation because of more frequent supervisory missions (including the 1998 Technical Review Mission) and increased vigilance in project monitoring to remove bottlenecks (e.g., urging the PIU to maintain adequate financial records to facilitate project implementation, to pay MUCIA quarterly rather than in advance, and to undertake a tracer study to better implement the fellowship program). These factors helped save the Project from being unsuccessful.

<sup>18</sup> The only scheme provided to poor students (regardless of GPA) was loans, rather than scholarships.

47. Borrower performance is rated partly satisfactory because of weak project management, especially in the initial implementation period, as reflected in (i) inadequate involvement in project formulation, hence inadequate preparation to implement the Project and lack of full ownership; (ii) appointment of staff with inadequate background about the Project and ADB procedures to implement the Project; (iii) insufficient PIU and counterpart staff; (iv) inadequate counterpart funds to fully support staff development and incoming academic staff programs; (v) frequent changes in CHE/OHE executive management positions and the project manager; and (vi) significant reduction in the project scope. However, after the restructuring of OHE in 1999 and the restoration of the project coordination committee for advising the EA on project management, Borrower performance improved, saving the Project from being unsuccessful. Borrower performance also improved after project completion under the current OHE leadership, and major activities initiated by the Project were continued (footnote 13).

### C. Technical Assistance

48. An advisory TA (footnote 6) was attached to the Project to help initiate the SIMS to establish baseline data, update them annually to monitor the progress of the Project, and develop a detailed strategy for education reform. The initial phase of the SIMS was successful, with the following outputs: (i) establishment of a website for CHE to improve its role in coordinating higher education institutions; and (ii) creation of new capacity for social research in higher education institutions by providing workshops to train 60 staff members as research supervisors, who in turn trained about 100 others in social research. After project completion, OHE initiated many good efforts to revive SIMS activities (footnote 13). However, the TA is rated partly successful because (i) during the Project, the SIMS database could not produce appropriate outputs for research analysis because OHE lacked staff and capacity; (ii) it could not be integrated with the Oracle EMIS system to form a single database system; (iii) it could not train new staff in the Excel system for data inputting; and (iv) it could not develop institutional data links between OHE and higher education institutions.

## V. ISSUES, LESSONS, AND FOLLOW-UP ACTIONS

### A. Issues

49. The following issues emerged from the assessment in chapters II–IV.

50. **Need to Rationalize the Entire Education System.** School education could not benefit from the Project's higher education improvement as intended because of weak links between the two sub-systems. These resulted in (i) difficulties in prioritizing education investments; and (ii) system inefficiency as the students who pass grade 12 are required to attend enrichment programs, ranging from 2 weeks to 2 years, before entering university. A strategic plan for the entire education system should be prepared to rationalize the system, including strengthening the role of private sector in providing education.

51. **Need to Make TESAS More Pro-Poor to Increase Access to Higher Education by Poor Students.** Since TESAS is driven by students' GPAs, it is not pro-poor. It does not cover students' tuition fees and other living expenses. A plan should be prepared to identify ways to make TESAS more pro-poor.

52. **Need to Address Project-Related Governance Issues.**<sup>19</sup> The TESAS selection procedure was not transparent or accountable because of the lack of a uniform GPA system across universities and institutions. A plan should be prepared to identify ways to increase transparency and accountability.

53. **Need to Increase Efficiency in the Use of Expatriate Lecturers.** The universities have been facing challenges: (i) the number of expatriates may not decline as rapidly as expected, or may even increase in the context of the Medium-Term Development Strategy, which emphasizes market competition; and (ii) the quality of higher education may decline as the number of expatriates declines. A plan should be prepared to increase efficiency in the use of expatriates by reducing their quantity without compromising quality.

## **B. Lessons**

54. The following lessons should be taken into account in formulating and implementing similar projects:

- (i) To avoid piecemeal results and increase the impact of ADB assistance on the MDG-related education indicators, policy dialogue should be conducted with concerned funding agencies to jointly identify sectoral issues at an early stage to design subsector interventions, with strong impact on the MDG indicators.
- (ii) To ensure links between education sub-systems, a strategic sector framework should be prepared to guide project design.
- (iii) To increase its project relevance, each project needs a project preparatory TA to analyze and assess the sector, institutional needs, and ADB's past assistance in the sector to draw lessons and explore ways to enhance ADB's impacts.
- (iv) To increase project ownership and success prospects, projects should be designed with active involvement of the EAs.
- (v) To avoid startup delays, key PIU staff members (including the project manager) should be in place before loan effectiveness.
- (vi) To create institutional development impact, a critical mass of staff needs to be trained.
- (vii) To increase efficiency in resource use of long-term fellowships, recipients of the programs should be required to sign contracts to ensure their return.
- (viii) To facilitate project implementation and skills transfer, counterpart staff should be sufficient, while consultant services should be fielded on a long-term basis to allow for a sufficient learning process.

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<sup>19</sup> Another governance issue found by the PPER is widespread ghost teachers and teacher absenteeism in schools (para. 35) caused by poor school management (but was outside the scope of the Project, which covered only higher education institutions). It was also caused by low teacher salaries and a payment system that required teachers to come to district offices fortnightly to get their salaries. Teacher salaries should be increased and the payment system changed.

- (ix) To increase coordination of project activities and services, consultants should be fielded to work as a team at the right time.

### **C. Follow-Up Actions**

55. OHE has been involved in preparing the NHEP-III (2006–2010). It has agreed with OEM to carry out the following follow-up actions<sup>20</sup> by the end of December 2006:

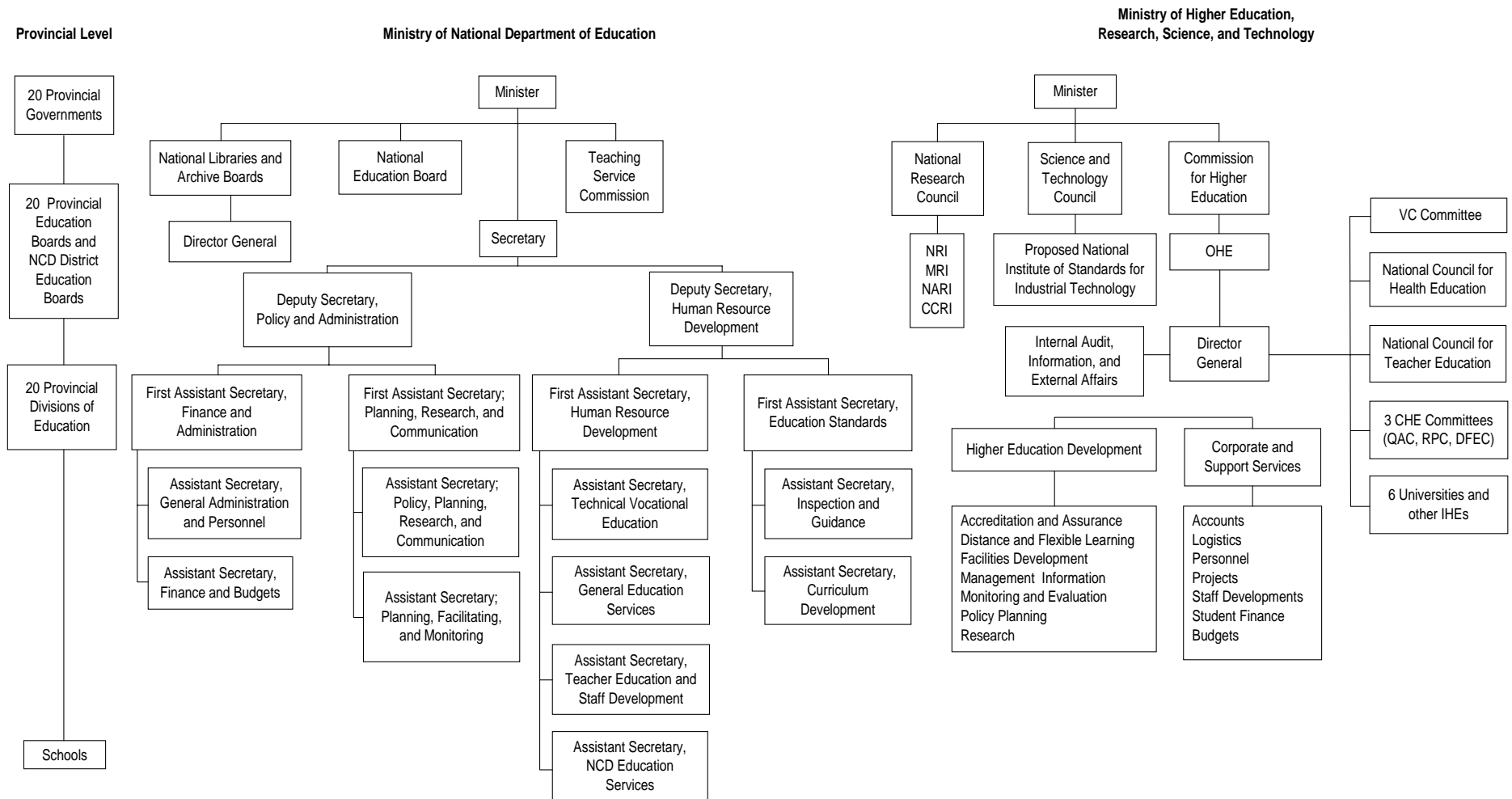
- (i) Develop a framework to rationalize the entire education system, consistent with public service reform management. The framework should explore ways to (a) improve links between higher and school education, with clearly defined roles and responsibilities of key agencies (e.g., OHE, NDOE, and other relevant national and provincial agencies); (b) improve the role and quality of the private sector in providing higher education; and (c) provide guidelines to develop an education sector strategy.
- (ii) Prepare OHE strategic guidelines consisting of (a) a program to institutionalize the SIMS and EMIS, (b) a plan to improve OHE staff capacity, and (c) tentative estimates of financial requirements.
- (iii) Review the strengths and weaknesses of TESAS and suggest ways to (a) improve its selection criteria to be more pro-poor (e.g., by reserving a quota for poor students from remote areas); and (b) increase transparency and accountability in the selection procedure (e.g., by involving universities and institutions).
- (iv) Request all universities to provide information on their current and planned use of expatriate lecturers, and carry out policy dialogue with the universities and concerned government agencies to prepare a strategy to ensure optimal use of expatriates (including skills transfer).

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<sup>20</sup> OHE has carried out some activities in support of these proposed follow-up actions.

# ORGANIZATIONAL STRUCTURE AND EDUCATION SYSTEM

Figure A1.1: Organizational Structure of Education in Papua New Guinea



CCRI = Cocoa and Coconut Research Institute, CHE = Commission for Higher Education, DFEC = Distance and Flexible Education Committee, IHE = institution of higher education, MRI = Medical Research Institute, NARI = National Agriculture Research Institute, NCD = National Capital District, NRI = National Research Institute, OHE = Office of Higher Education, QAC = Quality Assurance Committee, RPC = Resource Planning Committee, VC = vice chancellors.  
Source: OHE.

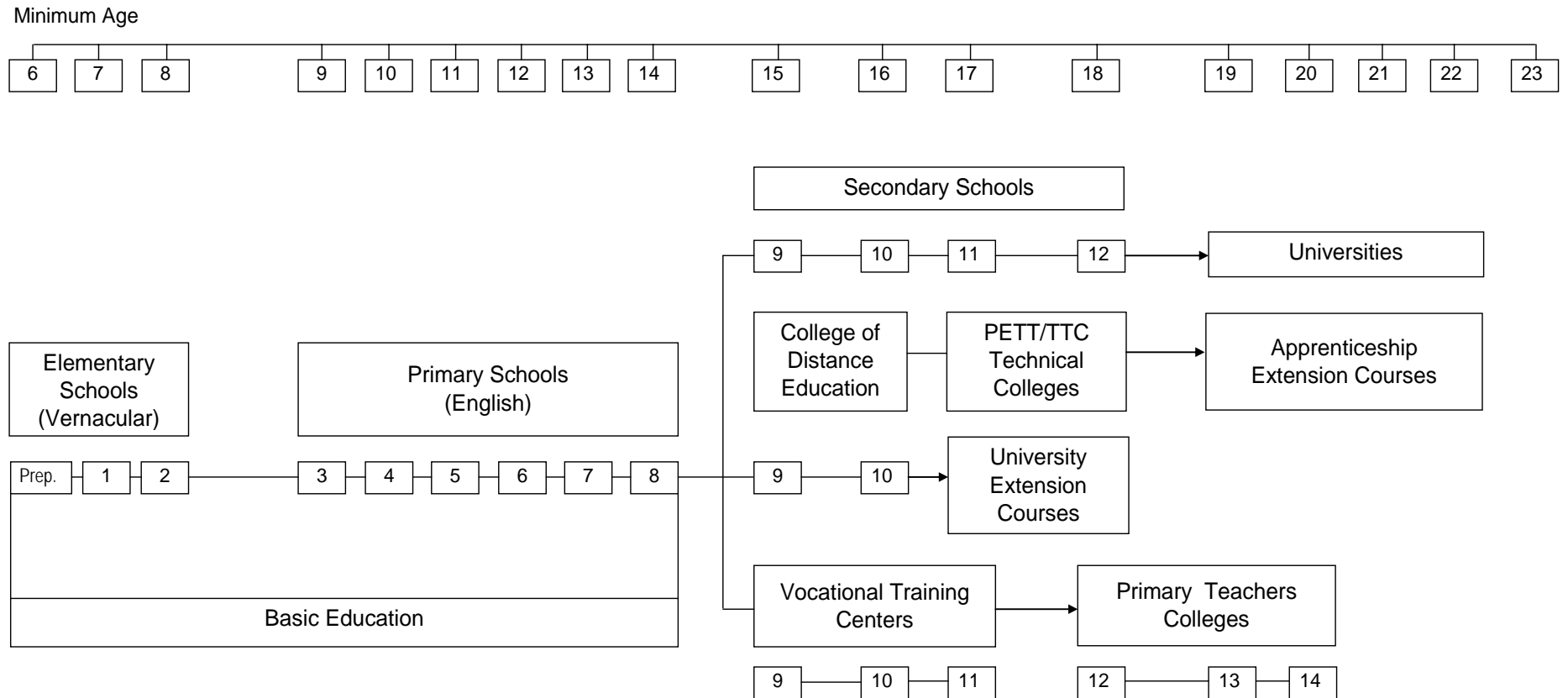
**Table A1.1: Support to the Education Sector by Funding Agency (1993–2004)**  
(kina million)

| Funding Agencies           | Year          |               |               |               |               |               |                |                |               |               |                |                | Total          |              |
|----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|----------------|----------------|--------------|
|                            | 1993          | 1994          | 1995          | 1996          | 1997          | 1998          | 1999           | 2000           | 2001          | 2002          | 2003           | 2004           | Amount         | %            |
| <b>A. Higher Education</b> |               |               |               |               |               |               |                |                |               |               |                |                |                |              |
| 1. AusAID                  | 0             | 400           | 0             | 0             | 0             | 27,318        | 27,736         | 27,917         | 19,979        | 22,560        | 9,747          | 43,889         | 179,545        | 68.1         |
| 2. ADB                     | 4,011         | 0             | 7,613         | 0             | 0             | 0             | 0              | 2,073          | 0             | 0             | 0              | 0              | 13,697         | 5.2          |
| 3. EU                      | 6,856         | 7,114         | 10,750        | 2,500         | 2,000         | 0             | 2,300          | 6,000          | 4,700         | 4,700         | 17,600         | 0              | 64,520         | 24.5         |
| 4. World Bank              | 0             | 565           | 0             | 186           | 223           | 483           | 107            | 0              | 0             | 0             | 0              | 0              | 1,564          | 0.6          |
| 5. Others                  | 0             | 0             | 0             | 492           | 0             | 0             | 0              | 0              | 0             | 0             | 0              | 3,821          | 4,313          | 1.6          |
| <b>Subtotal (A)</b>        | <b>10,867</b> | <b>8,079</b>  | <b>18,363</b> | <b>3,178</b>  | <b>2,223</b>  | <b>27,801</b> | <b>30,143</b>  | <b>35,990</b>  | <b>24,679</b> | <b>27,260</b> | <b>27,347</b>  | <b>47,710</b>  | <b>263,640</b> | <b>100.0</b> |
| <b>B. School Education</b> |               |               |               |               |               |               |                |                |               |               |                |                |                |              |
| 1. AusAID                  | 8,853         | 13,164        | 9,412         | 11,010        | 8,469         | 25,660        | 61,749         | 87,532         | 22,740        | 43,829        | 55,704         | 32,086         | 380,209        | 71.8         |
| 2. ADB                     | 0             | 0             | 0             | 5,322         | 0             | 3,685         | 0              | 0              | 0             | 0             | 0              | 0              | 9,007          | 1.7          |
| 3. EU                      | 0             | 0             | 0             | 360           | 0             | 6,980         | 6,040          | 6,000          | 437           | 0             | 17,600         | 8,000          | 45,417         | 8.6          |
| 4. World Bank              | 10,207        | 11,626        | 7,613         | 6,291         | 0             | 3,579         | 4,035          | 6,718          | 0             | 0             | 0              | 0              | 50,068         | 9.5          |
| 5. Others                  | 0             | 0             | 3,835         | 492           | 0             | 1,615         | 16,104         | 1,810          | 350           | 448           | 0              | 19,940         | 44,594         | 8.4          |
| <b>Subtotal (B)</b>        | <b>19,060</b> | <b>24,790</b> | <b>20,860</b> | <b>23,475</b> | <b>8,469</b>  | <b>41,519</b> | <b>87,928</b>  | <b>102,060</b> | <b>23,526</b> | <b>44,277</b> | <b>73,304</b>  | <b>60,026</b>  | <b>529,295</b> | <b>100.0</b> |
| <b>C. Education Total</b>  |               |               |               |               |               |               |                |                |               |               |                |                |                |              |
| 1. AusAID                  | 8,853         | 13,564        | 9,412         | 11,010        | 8,469         | 52,978        | 89,485         | 115,449        | 42,719        | 66,389        | 65,450         | 75,975         | 559,754        | 70.6         |
| 2. ADB                     | 4,011         | 0             | 7,613         | 5,322         | 0             | 3,685         | 0              | 2,073          | 0             | 0             | 0              | 0              | 22,704         | 2.9          |
| 3. EU                      | 6,856         | 7,114         | 10,750        | 2,860         | 2,000         | 6,980         | 8,340          | 12,000         | 5,137         | 4,700         | 35,200         | 8,000          | 109,937        | 13.9         |
| 4. World Bank              | 10,207        | 12,191        | 7,613         | 6,477         | 223           | 4,061         | 4,142          | 6,718          | 0             | 0             | 0              | 0              | 51,632         | 6.5          |
| 5. Others                  | 0             | 0             | 3,835         | 984           | 0             | 1,615         | 16,104         | 1,810          | 350           | 448           | 0              | 23,761         | 48,907         | 6.2          |
| <b>Total</b>               | <b>29,928</b> | <b>32,870</b> | <b>39,224</b> | <b>26,653</b> | <b>10,692</b> | <b>69,320</b> | <b>118,071</b> | <b>138,050</b> | <b>48,206</b> | <b>71,537</b> | <b>100,650</b> | <b>107,736</b> | <b>792,935</b> | <b>100.0</b> |

ADB = Asian Development Bank, AusAID = Australian Agency for International Development, EU = European Union.

Sources: National Planning Office, and ADB estimates.

**Figure A1.2: Education System in Papua New Guinea**



PETT = primary education teacher training, Prep. = preparatory school, TTC = teacher training college.

Source: National Department of Education.

## ESTIMATED AND ACTUAL PROJECT COSTS

(\$ million)

| Item                                       | Appraisal Estimate |             |              | Actual (PCR Stage) |              |              | % (Underrun)/Overrun |                |                |
|--|--------------------|-------------|--------------|--------------------|--------------|--------------|----------------------|----------------|----------------|
|  | Foreign            | Local       | Total        | Foreign            | Local        | Total        | Foreign              | Local          | Total          |
| <b>A. Staff Development</b>                |                    |             |              |                    |              |              |                      |                |                |
| 1. Overseas                                |                    |             |              |                    |              |              |                      |                |                |
| a. Long Term                               | 7.16               | 4.42        | 11.57        | 6.59               | 2.36         | 8.94         | (7.9)                | (46.6)         | (22.7)         |
| b. Short Term                              | 1.39               | 0.00        | 1.39         | 0.52               | 0.00         | 0.52         | (62.4)               | 0.0            | (62.4)         |
| 2. In-Country                              |                    |             |              |                    |              |              |                      |                |                |
| a. Long Term                               | 0.00               | 0.88        | 0.88         | 0.00               | 0.55         | 0.55         | 0.0                  | (37.7)         | (37.7)         |
| b. Short Term                              | 0.00               | 0.29        | 0.29         | 0.00               | 0.00         | 0.00         | 0.0                  | (100.0)        | (100.0)        |
| <b>Subtotal (A)</b>                        | <b>8.54</b>        | <b>5.59</b> | <b>14.13</b> | <b>7.11</b>        | <b>2.91</b>  | <b>10.01</b> | <b>(16.8)</b>        | <b>(48.0)</b>  | <b>(29.1)</b>  |
| <b>B. Consultant Services</b>              |                    |             |              |                    |              |              |                      |                |                |
| 1. Incoming Academic Staff                 | 3.21               | 0.82        | 4.03         | 1.67               | 1.20         | 2.87         | (47.8)               | 45.6           | (28.7)         |
| 2. Specialist Services Subtotal            | 4.83               | 0.00        | 4.83         | 3.56               | 0.00         | 3.56         | (26.3)               | 0.0            | (26.3)         |
| <b>Subtotal (B)</b>                        | <b>8.04</b>        | <b>0.82</b> | <b>8.86</b>  | <b>5.23</b>        | <b>1.20</b>  | <b>6.43</b>  | <b>(34.9)</b>        | <b>45.6</b>    | <b>(27.4)</b>  |
| <b>C. Civil Works Subtotal</b>             | <b>1.58</b>        | <b>0.87</b> | <b>2.45</b>  | <b>1.04</b>        | <b>0.27</b>  | <b>1.31</b>  | <b>(33.8)</b>        | <b>(69.6)</b>  | <b>(46.6)</b>  |
| <b>D. Equipment and Materials Subtotal</b> | <b>0.12</b>        | <b>0.01</b> | <b>0.12</b>  | <b>0.14</b>        | <b>0.03</b>  | <b>0.17</b>  | <b>17.5</b>          | <b>394.3</b>   | <b>35.8</b>    |
| <b>E. Project Implementation Cost</b>      |                    |             |              |                    |              |              |                      |                |                |
| 1. Project Staff/Advisors                  | 0.72               | 0.25        | 0.96         | 0.26               | 4.05         | 4.31         | (64.3)               | 1,554.7        | 348.4          |
| 2. Supplies                                | 0.12               | 0.19        | 0.32         | 0.02               | 0.04         | 0.06         | (83.1)               | (78.8)         | (80.5)         |
| 3. Other Operating Costs                   | 0.13               | 0.14        | 0.27         | 0.34               | 1.87         | 2.22         | 157.2                | 1,255.5        | 714.5          |
| <b>Subtotal (E)</b>                        | <b>0.97</b>        | <b>0.57</b> | <b>1.55</b>  | <b>0.62</b>        | <b>5.97</b>  | <b>6.59</b>  | <b>(36.2)</b>        | <b>939.2</b>   | <b>325.5</b>   |
| <b>F. Taxes and Duties</b>                 | <b>0.00</b>        | <b>0.24</b> | <b>0.24</b>  | <b>0.00</b>        | <b>0.00</b>  | <b>0.00</b>  | <b>0.0</b>           | <b>(100.0)</b> | <b>(100.0)</b> |
| <b>G. Service Charge</b>                   | <b>0.68</b>        | <b>0.00</b> | <b>0.68</b>  | <b>0.73</b>        | <b>0.00</b>  | <b>0.73</b>  | <b>7.1</b>           | <b>0.0</b>     | <b>7.1</b>     |
| <b>Total</b>                               | <b>19.93</b>       | <b>8.11</b> | <b>28.03</b> | <b>14.87</b>       | <b>10.37</b> | <b>25.24</b> | <b>(25.4)</b>        | <b>27.9</b>    | <b>(10.0)</b>  |

( ) = negative, – = not applicable, ADB = Asian Development Bank, PCR = project completion report.

Sources: ADB. 2002. *Project Completion Report on the Higher Education Project in Papua New Guinea*. Manila; and ADB estimates.

## ASSESSMENT OF OUTPUTS

| Components   | Appraisal Targets   | Actual Outputs   | Remarks            |
|--|---|--|--------------------|
| <b>Component A: Academic Improvements</b>  |   |  |                    |
| Academic staff development   |   | The actual outputs of this subcomponent included the following:  |                    |
|  | 23 staff members for long-term (4-year) overseas doctoral fellowships                                 | <ul style="list-style-type: none"> <li>32 staff members received long-term overseas doctoral fellowships;</li> </ul>   | 17 staff completed |
|  | 49 staff members for long-term (2-year) overseas master's fellowships                                 | <ul style="list-style-type: none"> <li>32 staff members received long-term overseas master's fellowships;</li> </ul>   | 25 staff completed |
|  | 18 staff members for long-term (2-year) in-country master's fellowships                               | <ul style="list-style-type: none"> <li>3 staff members received and completed long-term in-country master's fellowships;</li> </ul>  |                    |
|  | 49 staff members for short-term (3-month) skills upgrading and/or work attachment programs overseas   | <ul style="list-style-type: none"> <li>45 staff members received and completed short-term skills upgrading and/or work attachment programs overseas;</li> </ul>  |                    |
|  | 15 staff members for short-term (3-month) skills upgrading and/or work attachment programs in-country | <ul style="list-style-type: none"> <li>1 staff member received and completed a short-term skills upgrading and/or work attachment program in-country; and</li> </ul>   |                    |
| Long-term incoming academic staff for improving university teaching and research | 60 staff members for in-country workshops to train them as research supervisors                       | <ul style="list-style-type: none"> <li>60 staff members attended in-country workshops to train them as research supervisors, who subsequently trained 100 other staff to do social research.</li> </ul>  |                    |
|  | 28 long-term incoming academic staff members (56 person-years)  | <p>9 long-term incoming academic staff members (17.5 person-years) were fielded, of whom 2 were provided to UOG (computer science), 3 to UPNG (biology, economics, and physics), and 4 to UOT (biotechnology, computer science, environment, and mechanical engineering).</p> <p>Their general outputs included maintaining teaching and research functions while local university lecturers were away on study leave.</p> |                    |

| Components | Appraisal Targets | Actual Outputs   | Remarks   |
|------------|-------------------|--|---|
|            |                   | <p>Their specific outputs included the following:</p> <p>At UOG, the computer consultants helped set up computer programs and develop courses.</p> <p>At UPNG, the biology consultant helped set up a research program for monitoring coral reefs, and train university staff members and students in scuba diving.</p> <p>At UPNG, the economic and physics consultants helped design courses and set up research programs.</p> <p>At UOT, the environmental consultant did outstanding work by helping</p> <ul style="list-style-type: none"> <li>• set up the Environmental Management and Research Center;</li> <li>• increase environmental awareness and improve conservation of the natural environment of ecologically sensitive regions;</li> <li>• develop a postgraduate diploma proposal;</li> <li>• hold workshops on environmental awareness; and</li> <li>• complete, along with 13 other scientists, a biodiversity inventory for the Kamiali Wildlife Management Area (340 square kilometers belonging to the village of Lababia, Morobe province).</li> </ul> <p>At UOT, the mechanical engineering consultant helped set up the Non-Destructive Testing Center.</p> | <p>The center attracted funds for new buildings from the European Union, and the consultant's successor continued the work.</p> <p>The study prepared a baseline measurement of what existed in the area and has become a model for work of this kind.</p> <p>The center is the only one of its kind in this part of the world and remains active in research on heavy metals</p> |

| Components   | Appraisal Targets                             | Actual Outputs  | Remarks   |
|--|---|---|---|
|  |   |   | and equipment and underwater pipes and pipelines for multinational oil companies.   |
|  |   | At UOT, the biotechnology consultant helped set up the Bio-Technological Center.  | The center remains functional and is conducting research on local plants and food.  |
|  |   | At UOT, the computer consultant helped design new programs and courses and prepare preliminary work for the university's EMIS.  |   |
| Short-term specialists for project-related support | 24 short-term specialists (178 person-months) | 24 short-term specialists (168 person-months) were fielded.   |   |
|  |   | <p>Their outputs included</p> <ul style="list-style-type: none"> <li>• development of national curriculum guidelines for the diploma in primary teaching;</li> <li>• development of teacher education curricula;</li> <li>• production of manuals, texts, and checklists as teaching resources for college staff, including manuals for college inspectors;</li> <li>• provision of training workshops for teachers, college staff, and college inspectors;</li> <li>• preparation of reports to change school and teacher inspection and assessment practices;</li> <li>• development of instruments to assess staff development, including software;</li> </ul> | The guidelines provided core contents to be used by all teacher colleges and were written in modules to enable the transfer of credits. |

| Components   | Appraisal Targets                     | Actual Outputs   | Remarks  |
|--|---------------------------------------|--|--|
|  |                                       | <ul style="list-style-type: none"> <li>establishment of the School of Business Administration at UPNG and development of courses;</li> <li>redesigning of environmental courses at UPNG; and</li> <li>preparation of 12 advisory reports, which provided useful analysis and recommendations on teacher training guidelines and curricula, development of libraries, and computerization of administration.</li> </ul>           | Many reports were not circulated on time and recommendations were not considered because of insufficient counterpart staff. During the latter half of the Project, skills were transferred in some areas where sufficient counterpart staff members were working closely with the specialists. |
| Staff housing  | 12 staff houses at UPNG and 10 at UOT | The outputs of this subcomponent included 12 staff houses at UPNG and 10 at UOT.   | Although completed with some delays, they were highly appreciated since they helped raise staff morale and retention.  |
| <b>Component B: Institutional Capacity Development</b> |                                       |  |  |
| OHE's reorganization                                   | 52 staff positions for OHE            | <p>The outputs of this subcomponent included</p> <ul style="list-style-type: none"> <li>increase in staff positions for OHE from 22 in 1994 to 52,</li> <li>provision of equipment (office automation and consumables) and three vehicles, and</li> <li>introduction of student pay scheme.</li> </ul> <p>The following outputs of this subcomponents were achieved with the assistance of short-term specialists' services:</p> | <p>10 positions have not been filled because of the freeze on recruitment, and many staff members did not have a background in higher education.</p> <p>One vehicle was stolen, but replaced.</p>  |

| Components                          | Appraisal Targets                                 | Actual Outputs   | Remarks   |
|-------------------------------------|---|--|---|
|                                     |   | <ul style="list-style-type: none"> <li>• preparation of NHEP-II, including a higher education white paper;</li> <li>• establishment of the Distance Education Committee, the National Accreditation and Quality Assurance Committee, and the Resources Planning Committee;</li> <li>• establishment of NCTE to coordinate and provide professional support for teacher education; and</li> <li>• establishment of the EMIS Oracle database and the SIMS at OHE.</li> </ul> | <p>Although the SIMS was established, it was not in operation during the Project because of OHE's staff and budget constraints. However, under the current OHE leadership, a number of positive efforts were made after project completion, including (i) implementation of the NHEP-II (2000–2004), (ii) institutionalization of TESAS, (iii) revival of the SIMS by preparing a SIMS draft report using the 1999 survey, (iv) further development of the EMIS to electronically record the OHE database, (v) publication of the annual survey report of the institutions of higher education, and (vi) initiation of the preparation of the NHEP-III.</p> |
| OHE institutional staff development | 3 long-term overseas fellowships                  | <p>The outputs of this subcomponent met or exceeded appraisal targets, including the following:</p> <ul style="list-style-type: none"> <li>• 3 long-term overseas fellowships (2 for doctoral and 1 for master's programs),</li> </ul>   |   |
|                                     | 4 staff members for 3-month overseas study visits | <ul style="list-style-type: none"> <li>• 4 staff members for 3-month overseas study visits in higher education</li> </ul>  |   |

| Components | Appraisal Targets                                  | Actual Outputs   | Remarks |
|------------|--|--|---------|
|            | 80 person-weeks of short-term in-country workshops | management, and<br>• 120 person-weeks of short-term in-country education management workshops. |         |

EMIS = Education Management Information System, NCTE = National Council for Teacher Education, NHEP = National Higher Education Plan, OEM = Operations Evaluation Mission, OHE = Office of Higher Education, SIMS = Social Impact Monitoring Systems, TESAS = Tertiary Education Study Assistance Scheme, UOG = University of Goroka, UOT = University of Technology, UPNG = University of Papua New Guinea.  
Source: OEM Field Surveys in July 2005.

## ASSESSMENT OF OUTCOMES

Table A4.1: Information on Field Surveys

| Category of Respondents <sup>a</sup>           | Number of Respondents |
|--|-----------------------|
| University Administrators/Rectors <sup>b</sup> | 4                     |
| University Lecturers <sup>c</sup>              | 25                    |
| OHE Staff                                      | 2                     |
| Secondary School Principals <sup>d</sup>       | 2                     |
| Secondary School Teachers                      | 4                     |
| <b>Total</b>                                   | <b>37</b>             |

OEM = Operations Evaluation Mission, OHE = Office of Higher Education.

<sup>a</sup> The surveys were based on purposive sampling, taking into account accessibility, security, willingness to respond, and budget and time constraints. Thus, the sample size of each category of respondents was small. The analysis drawn from these survey data was qualitative, focusing on interpreting the data to gain insight into the real situations, rather than doing rigorous statistical tests.

<sup>b</sup> From the four project public universities, one administrator/rector was interviewed per university.

<sup>c</sup> All were trained overseas under the Project

<sup>d</sup> These were principals of the schools in which some of their teachers were students in the teacher education programs at the project public universities during the project period.

Source: OEM Field Surveys in July 2005.

**Table A4.2: Lecturers' Perceptions on the Utilization of Overseas Studies**

| Utilization of Overseas Studies in the Trained Areas | Doctoral  |            | Masters'  |            | Total     |            |
|--|-----------|------------|-----------|------------|-----------|------------|
|  | No.       | %          | No.       | %          | No.       | %          |
| Fully Utilized                                       | 4         | 40         | 4         | 27         | 8         | 32         |
| Moderately Utilized                                  | 5         | 50         | 8         | 53         | 13        | 52         |
| Partly Utilized                                      | 1         | 10         | 2         | 13         | 3         | 12         |
| Not Utilized   | 0         | 0          | 1         | 7          | 1         | 4          |
| <b>Total</b>   | <b>10</b> | <b>100</b> | <b>15</b> | <b>100</b> | <b>25</b> | <b>100</b> |

no. = number, OEM = Operations Evaluation Mission.

Source: OEM Field Surveys in July 2005.

**Table A4.3: Improvement in Job Responsibilities for Lecturers Finishing Overseas Studies**

| Improvement in Job Responsibilities after Overseas Studies | Doctoral  |            | Masters'  |            | Total     |            |
|--|-----------|------------|-----------|------------|-----------|------------|
|  | No.       | %          | No.       | %          | No.       | %          |
| Highly Improved  | 5         | 50         | 8         | 53         | 13        | 52         |
| Moderately Improved  | 4         | 40         | 6         | 40         | 10        | 40         |
| Partly Improved  | 0         | 0          | 0         | 0          | 0         | 0          |
| Not Improved   | 1         | 10         | 1         | 7          | 2         | 8          |
| <b>Total</b>   | <b>10</b> | <b>100</b> | <b>15</b> | <b>100</b> | <b>25</b> | <b>100</b> |

no. = number, OEM = Operations Evaluation Mission.

Source: OEM Field Surveys in July 2005.

**Table A4.4: Administrators' Satisfaction with Lecturers' Performance after Finishing Overseas Studies**

| Satisfaction with Lecturers' Performance | No.      | %          |
|--|----------|------------|
| Fully Satisfied                          | 1        | 25         |
| Moderately Satisfied                     | 3        | 75         |
| Partly Satisfied                         | 0        | 0          |
| Not Satisfied                            | 0        | 0          |
| <b>Total</b>                             | <b>4</b> | <b>100</b> |

no. = number, OEM = Operations Evaluation Mission.

Source: OEM Field Surveys in July 2005.

**Table A4.5: Administrators' Suggestions of Ways to Further Improve Lecturers' Performance**

| Ways to Further Improve Lecturers' Performance | No.      | %          |
|--|----------|------------|
| Professional Exchange and Sharing              | 2        | 29         |
| Instructional Materials Support                | 2        | 29         |
| In-House Training to Update Knowledge          | 2        | 29         |
| Academic and Supervisory Support               | 1        | 14         |
| <b>Total<sup>a</sup></b>                       | <b>7</b> | <b>100</b> |

no. = number, OEM = Operations Evaluation Mission.

<sup>a</sup> The total number of responses exceeds the number of respondents because of multiple answers, per one respondent.

Source: OEM Field Surveys in July 2005.

Table A4.6: Nationwide Annual Enrollment of Year-1 Undergraduate Students and Graduation Rate from Public Universities (1993–2004)

|   | Year         |              |              |              |              |              |              |              |              |              |              |              | Av. Annual  | Total of      |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|---------------|
|   | 1993         | 1994         | 1995         | 1996         | 1997         | 1998         | 1999         | 2000         | 2001         | 2002         | 2003         | 2004         | Growth (%)  | All           |
| <b>Year-1 Enrollment in Undergraduate Programs</b>  |              |              |              |              |              |              |              |              |              |              |              |              |             |               |
| 1. University of Papua New Guinea                   | 960          | 950          | 995          | 998          | 1,015        | 1,005        | 1,003        | 1,007        | 1,406        | 1,445        | 2,131        | 2,624        | 9.6         | 15,539        |
| 2. University of Technology                         | 443          | 527          | 705          | 750          | 575          | 590          | 653          | 734          | 716          | 615          | 657          | 724          | 4.6         | 7,689         |
| 3. University of Goroka                             | 141          | 160          | 182          | 166          | 189          | 222          | 251          | 279          | 245          | 322          | 287          | 503          | 12.3        | 2,947         |
| 4. University of Vudal                              | 28           | 47           | 45           | 57           | 59           | 66           | 79           | 105          | 117          | 85           | 90           | 102          | 12.5        | 880           |
| <b>Total</b>  | <b>1,572</b> | <b>1,684</b> | <b>1,927</b> | <b>1,971</b> | <b>1,838</b> | <b>1,883</b> | <b>1,986</b> | <b>2,125</b> | <b>2,484</b> | <b>2,467</b> | <b>3,165</b> | <b>3,953</b> | <b>8.7</b>  | <b>27,055</b> |
| <b>No. of Graduates from Undergraduate Programs</b> |              |              |              |              |              |              |              |              |              |              |              |              |             |               |
| 1. University of Papua New Guinea                   | 420          | 442          | 460          | 479          | 499          | 519          | 540          | 563          | 586          | 610          | 661          | 768          | <b>5.6</b>  | 6,547         |
| 2. University of Technology                         | 145          | 157          | 169          | 182          | 197          | 213          | 229          | 248          | 267          | 288          | 311          | 384          | <b>9.3</b>  | 2,790         |
| 3. University of Goroka                             | —            | —            | —            | —            | 73           | 83           | 94           | 106          | 120          | 135          | 173          | 209          | <b>16.1</b> | 993           |
| 4. University of Vudal                              | —            | —            | —            | —            | —            | —            | —            | —            | 12           | 17           | 24           | 34           | <b>41.5</b> | 87            |
| <b>Total</b>  | <b>565</b>   | <b>599</b>   | <b>629</b>   | <b>661</b>   | <b>769</b>   | <b>815</b>   | <b>863</b>   | <b>917</b>   | <b>985</b>   | <b>1,050</b> | <b>1,169</b> | <b>1,395</b> | <b>8.6</b>  | <b>10,417</b> |
| <b>Cohort Graduation Rate (%)</b>                   |              |              |              |              |              |              |              |              |              |              |              |              |             |               |
| 1. University of Papua New Guinea                   | —            | —            | —            | —            | 52           | 55           | 54           | 56           | 58           | 61           | 66           | 76           |             |               |
| 2. University of Technology                         | —            | —            | —            | —            | 44           | 40           | 32           | 33           | 46           | 49           | 48           | 52           |             |               |
| 3. University of Goroka                             | —            | —            | —            | —            | 52           | 52           | 51           | 64           | 63           | 61           | 69           | 75           |             |               |
| 4. University of Vudal                              | —            | —            | —            | —            | —            | —            | —            | —            | 20           | 26           | 30           | 32           |             |               |
| <b>Total</b>  | —            | —            | —            | —            | <b>49</b>    | <b>48</b>    | <b>45</b>    | <b>47</b>    | <b>54</b>    | <b>56</b>    | <b>59</b>    | <b>66</b>    |             |               |

— = not available, av. = average, no. = number, OEM = Operations Evaluation Mission.

Source: OEM Field Surveys in July 2005.

**Table A4.7: Average Wage and Salary Rates**  
(kina)

| <b>Items</b>                      | <b>Annual</b> | <b>Monthly</b> | <b>Semi-Monthly</b> |
|-----------------------------------|---------------|----------------|---------------------|
| University Lecturers <sup>a</sup> |               |                |                     |
| Local                             |               |                |                     |
| - Bachelor's Degree               | 33,276        | 2,773          | 1,387               |
| - Masters' Degree                 | 38,472        | 3,206          | 1,603               |
| - Ph.D.                           | 42,924        | 3,577          | 1,789               |
| Expatriates <sup>b</sup>          |               |                |                     |
| - Bachelor's Degree               | 52,044        | 4,337          | 2,169               |
| - Masters' Degree                 | 69,696        | 5,808          | 2,904               |
| - Ph.D.                           | 91,392        | 7,616          | 3,808               |

OEM = Operations Evaluation Mission, Ph.D. = Doctor of Philosophy, UOT = University of Technology.

<sup>a</sup> From UOT.

<sup>b</sup> Including allowances (e.g., housing).

Source: OEM Field Surveys in July 2005.

**Table A4.8: Nationwide Annual Enrollment of All Undergraduate Students and Lecturers in Public Universities (1993–2004)**

| Public Universities                  | Year  |       |       |       |       |       |       |       |       |       |       |       | Av. Annual Growth | Total of All |
|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------|--------------|
|                                      | 1993  | 1994  | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  | 2002  | 2003  | 2004  |                   |              |
| Enrollment in Undergraduate Programs |       |       |       |       |       |       |       |       |       |       |       |       |                   |              |
| 1. University of Papua New Guinea    | 2,479 | 2,542 | 2,608 | 2,674 | 2,743 | 2,814 | 2,886 | 2,960 | 3,037 | 3,115 | 3,195 | 3,375 | 2.84              | 34,428       |
| 2. University of Technology          | 1,757 | 1,801 | 1,838 | 2,195 | 2,179 | 2,198 | 1,987 | 1,985 | 1,993 | 1,981 | 1,979 | 1,846 | 0.45              | 23,739       |
| 3. University of Goroka              | 320   | 414   | 414   | 522   | 548   | 599   | 775   | 805   | 782   | 930   | 1,099 | 1,245 | 13.15             | 8,453        |
| 4. University of Vudal               | 117   | 120   | 114   | 126   | 138   | 162   | 193   | 240   | 276   | 304   | 297   | 294   | 8.74              | 2,381        |
| Total                                | 4,673 | 4,877 | 4,974 | 5,517 | 5,608 | 5,773 | 5,841 | 5,990 | 6,088 | 6,330 | 6,570 | 6,760 | 3.41              | 69,001       |
| Number of Lecturers                  |       |       |       |       |       |       |       |       |       |       |       |       |                   |              |
| 1. University of Papua New Guinea    | 254   | 255   | 297   | 256   | 229   | 175   | 211   | 245   | 221   | 195   | 193   | 215   | (1.50)            | 2,746        |
| 2. University of Technology          | 203   | 195   | 206   | 207   | 200   | 204   | 190   | 168   | 158   | 175   | 160   | 179   | (1.14)            | 2,245        |
| 3. University of Goroka              | 36    | 62    | 49    | 54    | 51    | 54    | 58    | 56    | 62    | 67    | 64    | 63    | 5.22              | 676          |
| 4. University of Vudal               | 24    | 26    | 28    | 28    | 31    | 30    | 30    | 31    | 31    | 38    | 37    | 37    | 4.01              | 371          |
| Total                                | 517   | 538   | 580   | 545   | 511   | 463   | 489   | 500   | 472   | 475   | 454   | 494   | (0.41)            | 6,038        |
| Student-Lecturer Ratio               |       |       |       |       |       |       |       |       |       |       |       |       |                   |              |
| 1. University of Papua New Guinea    | 10    | 10    | 9     | 10    | 12    | 16    | 14    | 12    | 14    | 16    | 17    | 16    | 4.42              |              |
| 2. University of Technology          | 9     | 9     | 9     | 11    | 11    | 11    | 10    | 12    | 13    | 11    | 12    | 10    | 1.61              |              |
| 3. University of Goroka              | 9     | 7     | 8     | 10    | 11    | 11    | 13    | 14    | 13    | 14    | 17    | 20    | 7.53              |              |
| 4. University of Vudal               | 5     | 5     | 4     | 5     | 4     | 5     | 6     | 8     | 9     | 8     | 8     | 8     | 4.54              |              |
| Total                                | 9     | 9     | 9     | 10    | 11    | 12    | 12    | 12    | 13    | 13    | 14    | 14    | 3.84              |              |
| Number of Lecturers by Type          |       |       |       |       |       |       |       |       |       |       |       |       |                   |              |
| Expatriates                          |       |       |       |       |       |       |       |       |       |       |       |       |                   |              |
| - Number                             | 225   | 238   | 209   | 191   | 181   | 158   | 145   | 136   | 113   | 111   | 84    | 89    | (8.09)            |              |
| - %                                  | 43.5  | 44.2  | 36.0  | 35.0  | 35.4  | 34.1  | 29.7  | 27.2  | 23.9  | 23.4  | 18.5  | 18.0  | (7.70)            |              |
| Females                              |       |       |       |       |       |       |       |       |       |       |       |       |                   |              |
| - Number                             | 60    | 63    | 68    | 67    | 76    | 62    | 74    | 80    | 73    | 74    | 86    | 74    | 1.92              |              |
| - %                                  | 11.6  | 11.7  | 11.7  | 12.3  | 14.9  | 13.4  | 15.1  | 16.0  | 15.5  | 15.6  | 18.9  | 15.0  | 2.35              |              |
| Masters' Degrees and Above           |       |       |       |       |       |       |       |       |       |       |       |       |                   |              |
| - Number                             | 365   | 369   | 393   | 416   | 373   | 358   | 357   | 354   | 344   | 356   | 341   | 347   | (0.46)            |              |
| - %                                  | 70.6  | 68.6  | 67.8  | 76.3  | 73.0  | 77.3  | 73.0  | 70.8  | 72.9  | 74.9  | 75.1  | 70.2  | (0.05)            |              |

av. = average, OEM = Operations Evaluation Mission.

Source: OEM Field Surveys in July 2005.

Table A4.9: Nationwide School Enrollment (1993–2004)

| Enrollment                 | 1993          | 1994          | 1995          | 1996          | 1997          | 1998           | 1999           | 2000           | 2001           | 2002           | 2003           | 2004           |
|----------------------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Grade 7                    | 19,613        | 23,694        | 27,180        | 29,735        | 33,609        | 39,001         | 41,954         | 45,561         | 49,522         | 53,531         | 57,142         | 66,907         |
| Grade 8                    | 17,503        | 19,094        | 22,028        | 23,952        | 26,091        | 31,365         | 34,385         | 39,122         | 41,409         | 43,694         | 48,369         | 53,147         |
| Grade 9                    | 13,504        | 15,766        | 16,452        | 17,400        | 18,644        | 20,735         | 22,759         | 24,885         | 26,628         | 30,589         | 31,765         | 34,401         |
| Grade 10                   | 13,612        | 12,712        | 14,205        | 14,872        | 15,562        | 17,340         | 18,329         | 20,616         | 22,781         | 25,086         | 27,102         | 29,351         |
| Grade 11                   | 1,131         | 1,681         | 2,040         | 2,411         | 2,602         | 2,877          | 3,755          | 4,671          | 5,939          | 6,692          | 7,948          | 8,608          |
| Grade 12                   | 985           | 1,119         | 1,632         | 2,085         | 2,397         | 2,509          | 2,811          | 3,653          | 4,330          | 5,507          | 6,615          | 7,164          |
| <b>Total (Grades 7–12)</b> | <b>66,348</b> | <b>74,066</b> | <b>83,537</b> | <b>90,455</b> | <b>98,905</b> | <b>113,827</b> | <b>123,993</b> | <b>138,508</b> | <b>150,609</b> | <b>165,099</b> | <b>178,941</b> | <b>199,578</b> |
| Grade 12 Pass Students     | —             | —             | —             | 1,970         | 1,842         | 1,889          | 2,007          | 2,124          | 2,476          | 2,477          | 3,220          | 4,027          |

— = not available, ADB = Asian Development Bank, NDOE = National Department of Education.

Sources: NDOE, and ADB estimates.

Table A4.10: Nationwide Survival Rates of Cohorts Enrolled in Grade 7 to Higher Grades (1994–2004)

(%)

| Cohort Survival Rates                    | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|--|------|------|------|------|------|------|------|------|------|------|------|
| Grade 7 to Grade 8                       | 97   | 93   | 88   | 88   | 93   | 88   | 93   | 91   | 88   | 90   | 93   |
| Grade 7 to Grade 9                       |      | 84   | 73   | 69   | 70   | 68   | 64   | 63   | 67   | 64   | 64   |
| Grade 7 to Grade 10                      |      |      | 76   | 66   | 64   | 62   | 61   | 58   | 60   | 59   | 59   |
| Grade 7 to Grade 11                      |      |      |      | 13   | 12   | 14   | 16   | 18   | 17   | 19   | 19   |
| Grade 7 to Grade 12                      |      |      |      |      | 13   | 12   | 13   | 15   | 16   | 17   | 17   |
| Grade 7 to Passing Grade 12 (Graduation) |      |      |      |      | 10   | 8    | 8    | 8    | 7    | 8    | 10   |

Source: Asian Development Bank estimates, based on Table A4.9.

## SUSTAINABILITY ANALYSIS

**Table A5.1: Government's Financial Sustainability Prospects (1993–2004)**

| Item   | 1993          | 1994          | 1995          | 1996          | 1997           | 1998           | 1999          | 2000           | 2001           | 2002           | 2003          | 2004           |
|--|---------------|---------------|---------------|---------------|----------------|----------------|---------------|----------------|----------------|----------------|---------------|----------------|
| GDP (current price, kina million)                              | 5,010         | 5,530         | 6,194         | 6,794         | 7,441          | 7,804          | 8,681         | 9,640          | 10,476         | 11,567         | 12,766        | 13,679         |
| Overall Rec. Exp. (kina million) <sup>a</sup>                  | 1,461         | 1,701         | 1,724         | 2,044         | 2,047          | 2,141          | 2,226         | 2,864          | 2,883          | 3,290          | 3,232         | 3,256          |
| <b>Overall Rec. Exp./GDP (%)</b>                               | <b>29.2</b>   | <b>30.8</b>   | <b>27.8</b>   | <b>30.1</b>   | <b>27.5</b>    | <b>27.4</b>    | <b>25.6</b>   | <b>29.7</b>    | <b>27.5</b>    | <b>28.4</b>    | <b>25.3</b>   | <b>23.8</b>    |
| <b>Total Rec. Education Exp. (kina '000)<sup>b</sup></b>       |               |               |               |               |                |                |               |                |                |                |               |                |
| - Elementary Education   | 0             | 9             | 24            | 42            | 160            | 91             | 232           | 281            | 197            | 9,644          | 10,824        | 18,212         |
| - Primary Education  | 21,489        | 16,787        | 15,516        | 9,608         | 32,785         | 37,867         | 26,987        | 30,712         | 37,561         | 57,907         | 24,240        | 31,930         |
| - Secondary Education  | 36,745        | 27,072        | 23,598        | 13,781        | 36,843         | 36,823         | 28,639        | 32,393         | 28,863         | 53,761         | 17,289        | 25,391         |
| - Higher Education   | 12,879        | 14,819        | 20,175        | 18,404        | 20,559         | 20,509         | 15,700        | 21,462         | 25,900         | 17,052         | 23,294        | 26,366         |
| - Others (Nonformal, Technical, and Vocational Education)      | 25,379        | 19,603        | 17,922        | 10,984        | 30,320         | 36,487         | 28,266        | 31,769         | 31,479         | 66,722         | 22,519        | 33,634         |
| <b>Total</b>   | <b>96,491</b> | <b>78,290</b> | <b>77,236</b> | <b>52,819</b> | <b>120,667</b> | <b>131,777</b> | <b>99,825</b> | <b>116,617</b> | <b>123,999</b> | <b>205,086</b> | <b>98,167</b> | <b>135,534</b> |
| <b>Total Rec. Education Exp./GDP (%)</b>                       | <b>1.9</b>    | <b>1.4</b>    | <b>1.2</b>    | <b>0.8</b>    | <b>1.6</b>     | <b>1.7</b>     | <b>1.1</b>    | <b>1.2</b>     | <b>1.2</b>     | <b>1.8</b>     | <b>0.8</b>    | <b>1.0</b>     |
| <b>Total Rec. Education Exp./Overall Rec. Exp. (%)</b>         | <b>6.6</b>    | <b>4.6</b>    | <b>4.5</b>    | <b>2.6</b>    | <b>5.9</b>     | <b>6.2</b>     | <b>4.5</b>    | <b>4.1</b>     | <b>4.3</b>     | <b>6.2</b>     | <b>3.0</b>    | <b>4.2</b>     |
| - Elementary Education Rec. Exp./Total Rec. Education Exp. (%) | 0.0           | 0.0           | 0.0           | 0.1           | 0.1            | 0.1            | 0.2           | 0.2            | 0.2            | 4.7            | 11.0          | 13.4           |
| - Primary Education Rec. Exp./Total Rec. Education Exp. (%)    | 22.3          | 21.4          | 20.1          | 18.2          | 27.2           | 28.7           | 27.0          | 26.3           | 30.3           | 28.2           | 24.7          | 23.6           |
| - Secondary Education Rec. Exp./Total Rec. Education Exp. (%)  | 38.1          | 34.6          | 30.6          | 26.1          | 30.5           | 27.9           | 28.7          | 27.8           | 23.3           | 26.2           | 17.6          | 18.7           |
| - Higher Education Rec. Exp./Total Rec. Education Exp. (%)     | 13.3          | 18.9          | 26.1          | 34.8          | 17.0           | 15.6           | 15.7          | 18.4           | 20.9           | 8.3            | 23.7          | 19.5           |
| - Other Education Rec. Exp./Total Rec. Education Exp. (%)      | 26.3          | 25.0          | 23.2          | 20.8          | 25.1           | 27.7           | 28.3          | 27.2           | 25.4           | 32.5           | 22.9          | 24.8           |
| <b>Total</b>   | <b>100.0</b>  | <b>100.0</b>  | <b>100.0</b>  | <b>100.0</b>  | <b>100.0</b>   | <b>100.0</b>   | <b>100.0</b>  | <b>100.0</b>   | <b>100.0</b>   | <b>100.0</b>   | <b>100.0</b>  | <b>100.0</b>   |
| Higher Education Rec. Exp. (kina '000)                         | 12,879        | 14,819        | 20,175        | 18,404        | 20,559         | 20,509         | 15,700        | 21,462         | 25,900         | 17,052         | 23,294        | 26,366         |
| No. of Undergraduate Students in All Public Universities       | 4,673         | 4,877         | 4,974         | 5,517         | 5,608          | 5,773          | 5,841         | 5,990          | 6,088          | 6,330          | 6,570         | 6,760          |
| Average Rec. Exp. Per Public University Student (kina)         | 2,756         | 3,039         | 4,056         | 3,336         | 3,666          | 3,553          | 2,688         | 3,583          | 4,254          | 2,694          | 3,546         | 3,900          |

ADB = Asian Development Bank, exp. = expenditure, GDP = gross domestic product, no. = number, rec. = recurrent.

<sup>a</sup> In this case, "budget" and "expenditure" are used interchangeably because budget allocated from one source to a recipient will finally become an expenditure of the recipient.

<sup>b</sup> Excludes development budget.

Sources: Treasury Department, and ADB estimates.

**Table A5.2: Sources and Uses of Public Universities' Annual Recurrent Budget (1993–2004)**  
(%)

| Item  | 1993         | 1994         | 1995         | 1996         | 1997         | 1998         | 1999         | 2000         | 2001         | 2002         | 2003         | 2004         |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Sources of Recurrent Budget</b>            |              |              |              |              |              |              |              |              |              |              |              |              |
| - Government's Contribution                   | 88.4         | 86.2         | 88.3         | 79.0         | 75.5         | 74.5         | 77.1         | 73.0         | 70.6         | 68.8         | 67.3         | 62.8         |
| - Tuition and Other Fees                      | 3.7          | 4.7          | 4.6          | 5.3          | 8.2          | 8.6          | 6.0          | 8.8          | 11.7         | 12.7         | 14.1         | 18.0         |
| - Income from Other Sources                   | 7.9          | 9.1          | 7.1          | 15.7         | 16.3         | 16.9         | 16.9         | 18.2         | 17.7         | 18.5         | 18.5         | 19.2         |
| <b>Total</b>                                  | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> |
| <b>Uses of Recurrent Budget</b>               |              |              |              |              |              |              |              |              |              |              |              |              |
| - Salaries and Allowances to Expatriate Staff | 23.2         | 23.3         | 22.0         | 21.4         | 21.5         | 21.6         | 22.8         | 21.2         | 20.5         | 20.7         | 19.7         | 18.8         |
| - Salaries and Allowances to Local Staff      | 31.9         | 32.8         | 32.1         | 31.9         | 32.8         | 33.1         | 33.7         | 33.1         | 32.9         | 33.9         | 32.6         | 31.9         |
| - Operation and Maintenance                   | 42.8         | 41.5         | 43.6         | 44.6         | 43.4         | 42.8         | 40.3         | 42.1         | 41.6         | 40.2         | 41.8         | 43.0         |
| - Other Quality Enhancing Activities          | 2.1          | 2.3          | 2.3          | 2.1          | 2.3          | 2.5          | 3.2          | 3.7          | 4.9          | 5.2          | 5.9          | 6.2          |
| <b>Total</b>                                  | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> |

OEM = operations evaluation mission.

Source: OEM Field Surveys in July 2005.

## IMPACTS ASSESSMENT

**Table A6.1: Nationwide Education-Related MDG Indicators**  
(%)

| Indicators                                   | 1990 | 1996 | 2002 |
|--|------|------|------|
| Adult Literacy Rate                          | 45.1 | 50.5 | 64.6 |
| Primary Education GER                        | 68.6 | 80.0 | 85.0 |
| Primary Education NER                        | 66.0 | 51.4 | 73.0 |
| Cohort Survival Rate from Grade 1 to Grade 5 | 59.1 | 59.2 | 59.8 |
| Secondary Education GER                      | 12.8 | 14.0 | 22.0 |
| Higher Education GER                         | 1.3  | 1.4  | 1.6  |

ADB = Asian Development Bank, GER = gross enrollment rate, MDG = Millenium Development Goal,

NDOE = National Department of Education, NER = net enrollment rate.

Sources: ADB. 2005. *Key Indicators*. Manila; ADB. 2005. *Country Strategy and Program Update (2005–2006) for Papua New Guinea*. Manila; and NDOE Statistics.

**Table A6.2: Nationwide Gender-Related Education MDG Indicators**  
(%)

| Indicators              | Female | Male | Latest Year |
|-------------------------|--------|------|-------------|
| Adult Literacy Rate     | 51     | 61   | 2002        |
| Primary Education GER   | 70     | 79   | 2002        |
| Primary Education NER   | 69     | 77   | 2002        |
| Secondary Education GER | 22     | 28   | 2002        |
| Higher Education GER    | 1      | 3    | 2002        |

ADB = Asian Development Bank, GER = gross enrollment rate, MDG = Millenium Development Goal,

NDOE = National Department of Education, NER = net enrollment rate.

Sources: ADB. 2005. *Key Indicators*. Manila; ADB. 2005. *Country Strategy and Program Update (2005–2006) for Papua New Guinea*. Manila; and NDOE Statistics.

Table A6.3: Nationwide Student Enrollment and Lecturers in All Types of Tertiary Institutions (2004)

| Universities/Institutions             | Student Enrollement |                |           |                  |           | Lecturers    |                |           |                            |           |                            |           |
|---------------------------------------|---------------------|----------------|-----------|------------------|-----------|--------------|----------------|-----------|----------------------------|-----------|----------------------------|-----------|
|                                       | Total<br>No.        | Females<br>No. | %         | AES/HECAS<br>No. | %         | Total<br>No. | Females<br>No. | %         | Masters'<br>Degrees<br>No. | %         | Doctoral<br>Degrees<br>No. | %         |
| <b>A. Public Universities</b>         |                     |                |           |                  |           |              |                |           |                            |           |                            |           |
| 1. University of Papua New Guinea     | 3,375               | 1,205          | 36        | 1,689            | 50        | 215          | 37             | 17        | 94                         | 44        | 67                         | 31        |
| 2. University of Technology           | 1,846               | 479            | 26        | 1,084            | 59        | 179          | 17             | 9         | 102                        | 57        | 38                         | 21        |
| 3. University of Goroka               | 1,245               | 468            | 38        | 656              | 53        | 63           | 17             | 27        | 19                         | 30        | 12                         | 19        |
| 4. University of Vudal                | 294                 | 103            | 35        | 127              | 43        | 37           | 3              | 8         | 13                         | 35        | 2                          | 5         |
| <b>Subtotal (A)</b>                   | <b>6,760</b>        | <b>2,255</b>   | <b>33</b> | <b>3,556</b>     | <b>53</b> | <b>494</b>   | <b>74</b>      | <b>15</b> | <b>228</b>                 | <b>46</b> | <b>119</b>                 | <b>24</b> |
| <b>B. Private Universities</b>        |                     |                |           |                  |           |              |                |           |                            |           |                            |           |
| 1. Pacific Adventist University       | 431                 | 206            | 48        | 177              | 41        | 33           | 14             | 42        | 16                         | 48        | 6                          | 18        |
| 2. Divine Word University             | 846                 | 427            | 50        | 186              | 22        | 53           | 17             | 32        | 18                         | 34        | 10                         | 19        |
| <b>Subtotal (B)</b>                   | <b>1,277</b>        | <b>633</b>     | <b>50</b> | <b>363</b>       | <b>28</b> | <b>86</b>    | <b>31</b>      | <b>36</b> | <b>34</b>                  | <b>40</b> | <b>16</b>                  | <b>19</b> |
| <b>Subtotal (A + B)</b>               | <b>8,037</b>        | <b>2,888</b>   | <b>36</b> | <b>3,919</b>     | <b>49</b> | <b>580</b>   | <b>105</b>     | <b>18</b> | <b>262</b>                 | <b>45</b> | <b>135</b>                 | <b>23</b> |
| <b>C. Other Tertiary Institutions</b> |                     |                |           |                  |           |              |                |           |                            |           |                            |           |
| 1. Teacher Colleges                   | 2,293               | 1,132          | 49        | 825              | 36        | 165          | 41             | 25        | 35                         | 21        | 0                          | 0         |
| 2. Technical/Business Colleges        | 2,471               | 794            | 32        | 536              | 22        | 177          | 53             | 30        | 0                          | 0         | 0                          | 0         |
| 3. Nursing Colleges                   | 483                 | 351            | 73        | 340              | 70        | 39           | 26             | 67        | 0                          | 0         | 0                          | 0         |
| 4. Miscellaneous Colleges             | 1,430               | 522            | 37        | 0                | 0         | 24           | 4              | 17        | 2                          | 8         | 0                          | 0         |
| <b>Subtotal (C)</b>                   | <b>6,677</b>        | <b>2,799</b>   | <b>42</b> | <b>1,701</b>     | <b>25</b> | <b>405</b>   | <b>124</b>     | <b>31</b> | <b>37</b>                  | <b>9</b>  | <b>0</b>                   | <b>0</b>  |
| <b>Total</b>                          | <b>14,714</b>       | <b>5,687</b>   | <b>39</b> | <b>5,620</b>     | <b>38</b> | <b>985</b>   | <b>229</b>     | <b>23</b> | <b>299</b>                 | <b>30</b> | <b>135</b>                 | <b>14</b> |

AES = Academic Excellence Scholarships, HECAS = Higher Education Contribution Assistance Scheme, no. = number, OEM = Operations Evaluation Mission, OHE = Office of Higher Education.

Sources: OHE Survey, 2004; and OEM Field Surveys in July 2005.

## **MANAGEMENT RESPONSE TO THE PROJECT PERFORMANCE EVALUATION REPORT FOR THE HIGHER EDUCATION PROJECT IN PAPUA NEW GUINEA (Loan 1224-PNG[SF])**

On 27 July 2006, the Director General, Operations Evaluation Department, received the following response from the Managing Director General on behalf of Management:

1. Management concurs with the findings and recommendations in OED's Project Performance Evaluation Report (PPER). We understand that OED has also conveyed the recommendations for follow-up action to the executing agency (EA), and that the Office of Higher Education (OHE) has agreed to carry out the recommended actions by end-2006. Because ADB is no longer active in the education sector in Papua New Guinea (PNG), we will share the report with development partners that are currently involved in the sector (Australia, Japan, New Zealand, European Union and the People's Republic of China) in PNG. Nonetheless, we consider that the lessons learned are relevant for our work in other developing member countries.

2. **Overall Assessment.** We agree with the overall project rating as partly successful and accept that project outputs were generally below appraisal targets. The OED report noted that there was only a slight increase in the average graduation rate of project universities, while the unit cost per student in public universities remained high, relative to other developing countries. Moreover, student quality did not improve much over the period. Although there were improvements in terms of cost recovery, the dependence on government financing for higher education remained high.

3. **Lessons Learned.** Management agrees with the lessons learned and will seek to share these with PNG Government counterparts and donor partners that are active in the education sector. We would like to underscore the importance of two lessons. First, the need for strong coordination with development partners, if possible, as early as the country programming stage, in order to ensure consistent approaches. Second, country ownership is indispensable, and can only be ensured by having the EA and major stakeholders as active participants in project design from the earliest stage.

4. **Follow-Up Actions.** Management agrees with the follow-up actions proposed in the report: (i) that OHE and other concerned agencies develop a framework to rationalize the entire education system; (ii) that a review be undertaken of the strengths and weaknesses of the scholarship scheme and suggestions made to make the selection criteria more pro-poor;

and (iii) that all universities be requested to provide information on their current and planned use of expatriate lecturers, and that a strategy be prepared to ensure optimal use of expatriates (including skills transfer). We have asked ADB Resident Mission (PNRM) staff to ensure that key officials of agencies involved in education, public finance, and national development planning are aware of these recommendations.