Pacific Studies Series

Toward a New Pacific Regionalism

An Asian Development Bank—Commonwealth Secretariat
Joint Report to the Pacific Islands Forum Secretariat

VOLUME 3: WORKING PAPERS
Working Paper No. 10

Benefit-Cost Analysis of a Pacific Regional Nurse Training Facility

Professor Ron Duncan
Pacific Institute of Advanced Studies in Development and Governance
University of the South Pacific
Suva, Fiji Islands

Preface

This report was prepared for the Pacific Islands Forum Secretariat (PFIS) in Suva, Fiji Islands. The report is one output of an Asian Development Bank (ADB) technical assistance project (TA 6226 REG): "Developing and Implementing the Pacific Plan for Strengthening Regional Cooperation and Integration." The Commonwealth Secretariat provided funding to the project.

The lead author of the report was Dr. Roman Grynberg, Deputy Director of Trade and Regional Cooperation at the Commonwealth Secretariat. He was assisted by Michael Hyndman, a cost-benefit analyst contracted by ADB, and Sacha Silva, an economist contracted by the Commonwealth Secretariat. Consultants from PIFS and the Pacific region provided valuable inputs for the report. Bill Costello was the ADB task manager.

The report is published in three volumes. Volume 1 is the Executive Summary. Volume 2 is the main report. Volume 3 contains the working papers commissioned for the report—a series of independent studies assessing potential benefits and costs of implementing a variety of possible regional initiatives. Volume 3 has been printed in hard copy in only limited numbers. However, it is available on the websites of ADB (www.adb.org) and at www.pacificplan.org.

Disclaimer

CONTENTS

I. INTRODUCTION

Is there justification for a regional nurse training facility to be set up in one of the Pacific island countries for the purpose of training nurses from the Pacific region to work off shore? This report provides an evaluation of the arguments for public support for such a facility and a preliminary assessment of the qualitative and quantitative private and social benefits and costs that could be associated with the establishment of a government-supported Pacific regional nurse training facility.

It is recognised that there is considerable concern that the health systems in Pacific countries are suffering because of the emigration of trained medical and nursing staff to higher-paying jobs overseas. This emigration is in response to the large and increasing demand for nursing staff in both developed and developing countries and the higher wages offered. Therefore, it would be important in establishing a regional nurse training facility to try to ensure that it did not have the effect of reducing the quality of health care in the Pacific countries, but rather to improve it. This objective may be achieved if the facility builds upon an existing training facility and leads to improvements in the local health system by improving the quality of training of nurses employed locally.

The benefit-cost study results show that the benefits of a regional nurse training facility far outweigh the costs (an estimated benefit-cost ratio of 11.2 at a discount rate of 3 % and a benefit-cost ratio of 6.1 at a discount rate of 8 %), if it is assumed that the facility trains additional nurses and does not lead to the loss of nurses from the local health system.

II. ARGUMENTS FOR A GOVERNMENT-FUNDED, PACIFIC REGIONAL NURSE TRAINING FACILITY

For reasons that may be placed under the headings of 'push' and 'pull' factors, there has been a rapid increase in the numbers of nurses emigrating from developing countries to work for short or long periods in high-income countries. This phenomenon has also been evident in the Pacific region in recent years. Many concerns have been raised about the impact of this so-called 'brain drain' on the source countries, such as the decline in the quality and volume of health services. But there are also perceived benefits from this international flow of services, most importantly the reverse flow of remittances. The question has arisen as to whether the prospective benefits are so large that they could justify a Pacific island government or governments setting up a training facility to train nurses to work overseas, as has happened in other countries.

However, before moving to this point, the question should be answered as to why the establishment of such a facility should not be left to the market. In the Philippines, for example, the country with the largest international flow of nurses, the training of nurses to work overseas is primarily undertaken by the private sector. If it is possible for the private sector to undertake this activity in the Philippines, why cannot it be left to the private sector in the Pacific? Are there 'market failures' and resulting external social benefits that could justify either subsidizing a private facility, or a Pacific island government—or a number of Pacific island governments jointly—establishing and running such a facility?

It is clear from reports of the hiring of immigrant nurses that there are often substantial requirements to be met in order for an immigrant nurse to obtain permission to work in the nursing profession in high-income countries. Countries such as the Philippines, with a reasonably long history of their nurses working overseas, have been able to establish a

reputation for their nurses, and therefore new immigrants find a well-established route for gaining employment as a nurse. However, for the Pacific island countries, there is no such established path. A new private training facility attempting to create demand for its graduates in the high-income countries would have a difficult job in establishing its credentials. This "barrier to entry" appears to be one of the major obstacles to the setting up of a private training facility.

Therefore, a major argument for a Pacific-wide regional nurse training facility is that the Pacific island governments could together negotiate with the destination governments to establish a uniform set of regulations under which nurses would be hired, and have the Pacific regional nurse training facility accredited with the destination countries so that its graduates would be recognized. Such negotiations on the part of the Pacific island governments appear to be the only way to overcome this "market failure". Otherwise, nurses from Pacific island countries will continue to experience difficulties in finding jobs in nursing and instead have to take on so-called "care giver" activities, which are less well paid. The larger the number of Pacific island governments involved in the negotiations with the destination countries, the greater would be their negotiating power. With even the smallest of them now members of international bodies such as the UN, their bloc bargaining power is considerable.

However, once having overcome this entry barrier by gaining international agreements for the accreditation of the regional facility, is there justification for public financial support for such a facility? There are clearly economies of size and scope in the training of nurses, given the different kinds of nursing functions. Therefore, it appears that it would be desirable for a facility to be set up that would accept enrollments from all Pacific countries. One means of establishing a training facility of sufficient size and scope, while at the same time meeting the certification requirements of the destination countries, would be for a training facility presently operating in one of the destination countries to establish a facility in a Pacific country. Such a facility may not need to be subsidized, or may only need to be subsidized for an initial establishment period. The easiest way to establish a high-quality regional training facility may therefore be for the Pacific governments to provide a loans scheme to fund training at a private facility.

Are there other reasons for the governments of the region to establish a government facility or to subsidize a private facility? Are there other market failures? Another possible market failure is that the setting up of a high quality nurse training facility to meet the standards of the destination countries—which it may be assumed would be of a higher level than in the source countries—could have beneficial impacts on the nursing services and health facilities within the Pacific countries. Not all nurses trained in the facility would necessarily emigrate and, being trained to a higher level than the existing nurses, could well lift health standards within the country. Further, those nurses returning from off-shore assignments, after having had substantial experience in the destination countries, would also help lift the standard of nursing. These benefits may not be captured by the nurses in the form of higher salaries and the resulting social benefits could justify government subsidies of the training facility.

III. BENEFIT-COST ANALYSIS OF A REGIONAL NURSE TRAINING FACILITY

In constructing a benefit-cost analysis of the proposed training facility, private and social benefits and costs have to be considered. The net private benefits are the increased benefits the nurses and their families derive from the training, less the costs of the training. The social benefits and costs are those benefits and costs not captured by the nurses' increased income and the training costs. The private benefits and costs may be considered as being split between the nurses and their families and the government, with the government receiving taxes

and perhaps training fees paid by the nurses, and paying any additional training costs from its taxation base.

As it is expected that most, if not all, the nurses graduating from the training facility will go overseas to work for a period, it is important to make clear the perspective from which the benefit-cost analysis is undertaken. One perspective is to consider the overseas workers as part of the Pacific country's economy and therefore to consider all of their net increase in income as being private benefits from the training facility. An alternative perspective is to consider only the portion of income remitted as comprising the additional private benefits. In this preliminary analysis, we will consider both cases, as it is not clear where the decision should lie. In the case of Filipino nurses, for example, it is clearly understood that they will be working overseas for fixed periods and that they will be repatriated at the end of their contract. In the case of Pacific Islanders working in Australia and New Zealand, obtaining permanent residency may be relatively easy and it cannot be assumed that they will be returning, at least during their working life. Where the overseas workers return, it appears reasonable to consider them as a part of the economy while they are overseas.

However, if emigration is thought of in the way in which Oded Stark (1991) has pioneered—i.e., it is primarily a means of the household spatially and temporally diversifying its risks—then it is reasonable to think of emigrant workers—especially those who send back remittances—as an integral part of the economy. Therefore, the analysis here is biased towards considering the net increase in the incomes of emigrants as private benefits resulting from the project.

Based on the arguments above, it is assumed that, without government intervention to obtain accreditation for a nurse training facility in the Pacific, nurses from the region will find it difficult to obtain employment overseas as nurses, and therefore the number of people able to gain employment overseas as nurses will be considerably less than if such a training facility existed. It is also assumed that there is considerable potential for increases in the number of people trained as nurses and willing to work overseas. In view of the high levels of unemployment and underemployment in the Pacific island countries, and the large proportion of the population under 15 years of age in most of these countries, this appears to be a valid assumption.

The key questions as far as the private benefits from this government intervention are concerned are, first, what is the likely increase in wages to be earned by the emigrating nurses as the result of the training? Second, for how long will they earn the higher wage? Third, what is the amount that emigrant nurses are likely to remit annually? The private benefits of the training facility will also include any increase in the incomes of the nurses who do not emigrate and of those nurses who return. Looking at the proposal from the governments' point of view, there is also the question of how much the increase in remittances is likely to add to consolidated revenue?

If nurses' wages in the Pacific countries reflected their productivity, there would be little in the way of external benefits from the training of nurses who do not emigrate or those who return from overseas. However, it is probably not correct to assume that Pacific labour markets are competitive and that productivity increases will be reflected in wages. Therefore, some allowance should be made for the external benefits of the improved training and experience.

Where it can be assumed that there is a large pool of unemployed or underemployed labour, the opportunity cost of the untrained person who remains in a Pacific island country is probably close to basic living or subsistence costs. If Fiji Islands is taken to be the country supplying the

bulk of trainees to the regional training facility, the annual opportunity cost can be set at around Fiji dollars (F$)4,500, which approximates the annual earnings of people with no training beyond secondary school. This opportunity cost is assumed to increase at 4% per year.

For the purpose of the exercise, Australia is assumed to be the emigration destination country. The starting wage for a registered nurse in Australia is presently around Australian dollars (A$)32,000. At the current A$/F$ exchange rate of around 0.8, this wage is equivalent to F$40,000 (as compared to the starting wage for a registered nurse in Fiji Islands of F$11,600). Hence, the increase in wages in the first year as the result of training would be F$35,500, i.e., the wage received in Australia less the opportunity cost of remaining untrained in Fiji Islands (F$40,000-F$4,500).

How long can emigrant nurses be expected to remain overseas? The only information available on this question is that from a study of emigrant nurses from Samoa and Tonga (Connell and Brown 2004). In a 1994 survey, Connell and Brown found that the average period of overseas stay was 11.5 years and that annual remittances by these nurses totaled A$4,000 in 2003 dollar terms (i.e., F$5,000). On the basis of this information, it appears reasonable to assume that emigrant nurses will remain in employment for 10 years. It is further assumed that the nurses will undertake a three-year degree program at the regional training facility and therefore they do not start earning in Australia until year four. It is also assumed that the nurses will progress up the salary scale and be promoted within Australia at a reasonable pace.

With respect to the increase in incomes earned by the emigrant nurses, there is the question of how to treat income taxation and other taxes they would pay in Australia. There is also the question of how to allow for the difference between the costs of living in Fiji Islands and the costs of living in Australia. As far as taxation is concerned, it is assumed that the nurses receive the full benefit of the taxes they pay in the form of the services provided by governments in Australia. Therefore, there is no deduction of taxes from income.

As for the difference in the living costs between the two countries, it is assumed that the equivalent to a basic standard of living in Fiji Islands is the unemployment benefits paid to a single person in Australia. This basic living cost is set at F$16,250 in the first year of the nurse's employment in Australia and is assumed to increase at 3% a year. The difference between the unemployment benefit and what it actually costs the nurses to live in Australia is assumed to reflect the higher level of living experienced by the nurses and therefore is counted as a private benefit received by the nurses. The alternative is to assume that the only benefit from going to work in Australia is the value of the remittances—assuming these are equivalent to the savings of the emigrant nurse. However, this assumption would not make any allowance for the difference in living standards between Australia and Fiji Islands, nor for any savings the emigrants may retain in Australia.

The most difficult benefits to evaluate are: (i) the increase in income earned by a nurse trained at the facility who does not go overseas, and (ii) the incomes earned by nurses who return following their employment overseas. With respect to (i) it is assumed that the difference in income due to the training is the difference between the income of a registered nurse in Fiji Islands and the wage of an unskilled worker. However, it is difficult to know what percentage of nurses trained at the facility will elect not to go overseas. With regard to (ii), the unknowns are: how much will the nurses earn upon their return; and for what period of time will they work following their return. For the exercise, it was assumed that 10% of the nurses trained at the facility do not go overseas. Therefore, the benefits from their training are assumed to be equal to one-tenth of the difference between the lifetime income for a registered nurse in Fiji Islands

(assumed to be over a period of 25 years, with regular salary increases and promotions) and the income of an unskilled worker. Because 10% of graduates do not go overseas, the overseas benefits of the training are reduced by 10%.

For nurses who return following overseas employment it was assumed that they would be able to obtain work as nurses or in some form of care-giver role. Hence, it was assumed that, starting in year 14 and for the next 15 years, they would earn additional income equal to the difference between the unskilled wage and the wage of an experienced nurse in Fiji Islands (presently around F$23,000). As stated previously, the unskilled wage is assumed to increase at 4% per year.

The benefit-cost exercise is undertaken in terms of Fiji dollars. The Australian salaries are converted to Fijian dollars at an exchange rate of 0.8 for the first 6 years that the nurse is overseas and at 0.75 for the next four years. The present value of the benefits and costs are evaluated at a low (3%t) and a higher (8%) discount rate. The results from the various assumptions made are set out in the table below. At a discount rate of 3%, the present value of the net increase in income as the result of the project is F$371,880. At a discount rate of 8%, the present value of the net increase in income is F$194,400.

What is the expected cost of training in the regional facility? One means of establishing the cost is to use as a benchmark the tuition fees in similar kinds of training organisations where there are no government subsidies involved. Such a comparator is the subsidiary of the Central Queensland University established in Suva. This organisation has been in operation for several years and its fees should reflect the business environment in Fiji Islands reasonably well. Moreover, it is mainly training people to leave Fiji Islands for work off shore, mostly in Australia and New Zealand, and therefore its pricing should to some degree reflect the expected overseas earnings of its students (including the remittances that will be sent back to the family).

For a three-year degree (Information Technology) at the Central Queensland University, the student is required to take 24 units at a cost of F$1,125 per unit. This works out to annual tuition charges of F$9,000. Presumably, this charge allows for the university to make a profit on its activities. Students have to meet their accommodation costs separately.

By comparison, for a three year Diploma in Nursing at the Fiji School of Nursing, the annual tuition and accommodation costs total F$9,000, of which one-half is paid by a sponsor and one-half is paid by the student. Accommodation is provided on campus. In order to receive the scholarship, the nurses are bonded for three years, including one year of internship (with the public hospitals). At the University of the South Pacific (USP), annual regional tuition costs for a three-year undergraduate degree at the Suva campus are around F$5,000.

Given the necessity to provide a high-quality training facility for nurses that would enable them to meet the accreditation requirements of the high-income countries, the annual tuition costs of the University of Central Queensland (UCQ) in Suva of F$9,000 would appear to be a more appropriate comparator for the tuition costs of a regional nursing facility than the tuition costs of the Fiji School of Nursing or those of USP. In setting the tuition fees, consideration would have to be given to being able to afford the salaries of instructors capable of providing the training needed to satisfy the accreditation requirements of the destination countries. Moreover, the training at the regional facility is likely to be equipment-intensive, as it will be providing training over a range of nursing and medical procedures. Therefore, for the purpose of this exercise, the annual tuition fee is set at F$10,000. It is likely that there will be a fairly high drop-out rate—at least in the first year of training. If the drop-out rate is assumed to be 30% in the first year

and 10% in the second year, the effective tuition fees over the three years are F$13,000, F$11,000 and F$10,000, totalling F$34,000.

Accommodation and other living expenses are not included in the analysis of the costs, as whether these are paid for by the trainee nurse or the trainee nurse's family, or by the government, they are transfers and not extra costs arising because of the development of the training facility.

The present value of the training costs of F$34,000 over the three years is F$33,110 using a discount rate of 3% and F$31,756 using a discount rate of 8%. The benefit-cost ratio of the regional nurse training facility is therefore calculated at 11.2 at a discount rate of 3% and 6.1 at a discount rate of 8%.

Undiscounted Benefits and Costs of a Pacific Regional Nurse Training Facility (assuming emigrants remain part of the Pacific economy)

	Costs (Fiji dollars)	**Benefits** (Fiji dollars)
Australian nurse's salary earned over 10 years, less 10 per cent (allowing for graduates who do not emigrate)		483,120
Less opportunity cost of Fiji Islands employment over 10 years (times 0.9)		-48,780
Less living expenses in Australia, equiv. to Aust. unemployment benefits, over 10 years (times 0.9)		-172,890
Subtotal		261,450
Increased income earned by emigrant following return (times 0.9)		304,700
Increased income earned by 10% of graduates who do not go overseas		26,500
Tuition fees for 3 years training	34,000	
Total	**34,000**	**592,650**

If it is assumed that the benefits accruing to the emigrant nurse from working overseas do not add to the welfare of the source country, only the value of the remittances count as benefits from the graduate training facility, plus the additional income earned by those graduates who do not go overseas, plus the additional income earned by returning emigrants. For this case the value of the remittances over the ten-year period was estimated as follows. As noted above, Connell and Brown (2004) found that the average annual remittances by nurses from Samoa and Tonga in 1994 were the equivalent of F$5,000. These were assumed to have increased in real terms by 2 per cent per year over the past ten years and to increase at 2 per cent per year over the ten years that emigrant nurses from the regional training facility will work overseas. Hence, average annual remittances are assumed to be F$6,100 at the start of the period of

emigration; and therefore total remittances over the ten-year period of offshore employment of the graduate from the training facility are F$66,700.

The estimates of the additional income earned by the 10 per cent of graduates who remain in the country and the additional income earned by the returning emigrants are based on the same assumptions made above for the case where the benefits accruing to the emigrant nurses while they are overseas are counted as benefits of the training facility. These benefits (see table above), together with the total undiscounted benefits of the remittances, amount to F$397,900. At discount rates of 3 per and 8 per cent, the total discounted flows of benefits from remittances and from the additional income from increases in incomes earned locally are F$225,400 and F$97,500, respectively. The benefit-cost ratio at a 3 per cent discount rate is 6.8; at a discount rate of 8 per cent, the benefit-cost ratio is 3.1.

A. External Benefits and Costs

It will likely be necessary that trainees of the regional nurse training facility receive practical experience in a hospital. If this is unpaid work, the value of the work can be considered as an external benefit of the project. If, say, third-year nurses are required to undertake 20 hours per week for 50 weeks, and this work is valued at F$2.50 per hour, the total worth of their contribution would be F$2,500 (as compared to the starting salary in Fiji Islands of F$11,600 for a registered nurse).

As it is assumed that the nurses trained at the regional training facility would be additional to the numbers of nurses already being trained, social costs in the form of a decline in the quality of health services due to nurses emigrating should not be claimed against such a facility. Further, it is sometimes claimed that there are social costs arising from the loss of younger people from rural areas, reflected in the reduced quality of care for the elderly and for children. However, it is likely that the young people undertaking the training would be moving out of the rural areas regardless of the establishment of the training facility. Thus it would not be valid to charge these social costs against the training facility.

B. Government Budgets

As far as the Pacific governments' budgets are concerned, to what extent would the tax revenues accruing from the additional remittances received from the additional nurses working off shore off-set the expenditure incurred in establishing and running a Pacific regional nurse training facility?

The governments would benefit directly to the extent to which the remittances were spent on consumption and VAT and/or import duties were in place. In Fiji Island's case, for example, there is a VAT of 12.5 percent and import duties of up to 27 per cent on many items with high priority in the consumption basket, such as rice, flour, milk, and tinned fish. Therefore, the government probably captures 20-25 per cent of the remittances spent on consumption goods (including durable goods such as clothing and shelter). That is, from each graduate working overseas, it would receive F$1,000-1,500 each year for a period of ten years. The governments would also benefit to the extent that some of the remittances are invested in taxation-generating activities.

If the governments meet the tuition costs of the students, the per student total costs over the three-year period (allowing for drop outs) would be F$34,000. If the governments pay the living

expenses of students as well as the training fees, their total financial commitment for each student would be around F$50,000 over the three-year period.

C. Other Considerations

What is the minimum economic size of a regional nurse training facility capable of providing the breadth and quality of training needed to satisfy the accreditation requirements of the destination countries? Economies of size and scope mean that the facility should be of a certain minimum size if it is to provide the necessary training facilities. The larger the intake of students, the lower will be the individual costs of training.

According to the Pan American Health Organization (PAHO) there are 19 nursing schools in the Caribbean region, with ten of these in the two largest countries (Jamaica and Trinidad and Tobago). Those schools located in the smaller island countries range in size, in terms of student capacity, from 20 to 60. A few of the others are larger, with student seating capacity up to 150. However, there is no information about the financial viability of these operations. It is doubtful that these small schools could provide a high-quality training program without substantial financial support from government or private donors.

A facility capable of enrolling 150 to 200 students appears to be about the minimum viable size. For a three-year training program (resulting in graduates with the equivalent of a B.Sc. degree), this number of students would entail first-year classes of around 80 and would require the equivalent of six to eight instructors plus technicians and administrative assistants. The resulting salary bill, given that the instructors are paid at salaries equivalent to USP salaries, would be in the region of F$1.2 million. Therefore, if annual tuition fees were to be set at F$10,000 and with, say, 180 students, there would F$600,000 available after the payment of salaries to pay for buildings and equipment and operating costs. However, for the training facility to have a major impact in terms of creating overseas employment opportunities for the large numbers of young people presently unable to find local jobs, and to be a significant contributor to remittances, the facility would have to be many times larger than this—possible ten times this size.

If the regional training facility is government-funded, there arises the question of whether trainees should pay training fees and accommodation expenses. The reason that the issue of the payment of fees for education and training presents so much difficulty and so much argument is that education is partly consumption and partly investment, and moreover, it is also partly a private good and partly a public good. Because education is partly an investment and because it is very difficult, if not illegal, to borrow against human capital, there is an argument that the state should pay for education, or at least subsidise it. The public good nature of education is claimed on the basis that the education of the people contributes to the effective functioning of a society.

Hence, the issue of whether the state should subsidize education arises whether or not the training facility is private or public. A judgment is therefore necessary as to whether to charge tuition fees, and if so, how much. If a fee is charged, however, equity considerations arise. It may be argued that people from low-income households will be discriminated against if they are forced to pay fees. A mechanism that may be used to overcome this difficulty is to adopt a scheme similar to Australia's Higher Education Contribution Scheme (HECS) for students undertaking tertiary education. Under this scheme, fees are charged but repayment is delayed until the person is employed and earning above a certain level of income. However, adoption of

this kind of scheme in a situation where people are being trained to work overseas for extended periods poses obvious difficulties as regards repayment of the loan.

REFERENCES

Connell, John and Richard C. Brown, "The remittances of migrant Tongan and Samoan nurses from Australia", *Human Resources for Health*, Vol. 2, available on http://www.human-resources-health.com/content/2/1/2

Stark, Oded, 1991. *The Migration of Labour*, Basil Blackwell, Oxford.