

Review of the PNGSDP

Papua New Guinea Sustainable Development Program

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I. Introduction and Compliance with Rules and Articles of Association

The Papua New Guinea Sustainable Development Program (PNGSDP) is a unique organization with a wide range of responsibilities. Given that there are few precedents for such an organization and given that PNGSDP has been operating for only four years, it has made remarkable progress in setting up the organization and beginning to support specific development efforts in Western Province and in Papua New Guinea (PNG) more generally. Some observers in Western Province and elsewhere are impatient to see more rapid implementation of these development efforts. Even if the funds had been much larger than they were at the outset of the program, pushing large amounts of funding out the door before procedures and personnel were in place would probably have led to considerable waste. Key procedures and personnel, however, are now in place and one can anticipate a steady rise in PNGSDP development activities.

Formally, PNGSDP, during the continued operation of the Ok Tedi Mine, is charged with spending one-third of its net income on Development Programs (within this one-third, one third is to be spent on development projects in Western Province with the remaining two-thirds going into development projects in the rest of PNG); the balance of the dividend income is to be allocated to a Long Term Fund which, while the Mine is operating, is to be invested in “low risk” investments. After Ok Tedi Mine closes, the Long Term Fund is to be applied for sustainable development purposes, mainly in Western Province, to mitigate the impact of the closure of the Mine and to support social and economic services at the level which existed before mine closure. In addition, PNGSDP holds 52 percent of the shares of the Ok Tedi Mine Limited (OTML) and through ownership has indirect responsibilities for those impacted by the environmental damage done by the mine. PNGSDP will be responsible for maintenance of services and development investment for

these people when the mine closes to an extent yet to be determined, but, by contract between BHP Billiton and the Papua New Guinea government, that amount cannot be determined until the mine actually closes, which is currently set to happen in 2013.

The PNGSDP charter states that there should be an independent review of its operations every three years. The company was incorporated in Singapore on October 20, 2001 and commenced operations in Port Moresby on November 5, 2002. The permanent Board was not fully appointed until April 2003, however, and it was not until 2004 that the Company was able to begin its full range of functions and responsibilities. Thus the three year period to be reviewed was interpreted as beginning in 2004 and ending on December 31, 2006. This review and report, therefore, covers that three year period 2004-2006 and was conducted for the purpose of meeting the independent review requirement. The review was carried out between February 11, 2007 (with preliminary work in Cambridge, MA, USA prior to that date) and March 1, 2007 mainly in PNG (Port Moresby and Western Province), while interviews of key personnel were conducted in Sydney and Melbourne, Australia. The report was presented to the Board of Directors of PNGSDP at its quarterly board meeting in Singapore on March 2, 2007. Further work on the report was done in Cambridge after that date.

As the reviewer, I was provided access to all information that I requested. Furthermore I attended several informal meetings held by the Board in Port Moresby and and a formal meeting in Singapore and met individually with the Chairman and members of the board, and the Chairperson of the Advisory Council. I also met with the Chief Executive Officer and the Chief Financial Officer as well as with the Program staff and key management staff of PNG Microfinance Limited (PNGMFL), PNG Sustainable Energy Limited (PNGSEL), and PNG Sustainable Infrastructure Limited (PNGSIL).

In addition to people associated with PNGSDP or its affiliate companies, I met with representatives of BHP Billiton, a PNG Government minister, and other government officials. In Tabubil I met informally with the Managing Director of OTML and with other members of the OTML Board. In addition I visited several project sites including sites in Western Province.

I was given access to the report of the Boston Consulting Group on the Management Review of PNGSDP carried out in 2006, and I met in Melbourne with the BCG Partner responsible for this review.

I was also provided access to existing annual reports and audited accounts including the 2006 audited accounts and participated in a discussion of the forthcoming 2006 annual report. The audits in each case have been carried out by a widely recognized international accounting firm (Price waterhouseCoopers) with offices in Port Moresby. I also note that the considerable funds now held by PNGSDP are being professionally managed by two internationally recognized fund managers—Newton Investment Management Ltd and Schroders. A full list of the individuals met with and my itinerary are presented in the Appendix.

One of the main purposes of this review was to reach a judgment as to whether PNGSDP's operations conformed to the Objects and Program Rules governing PNGSDP. During my various meetings in PNG and elsewhere, no issue or concern was raised that implied in any way that the activities of the Board and Management did not comply with the Objects and Program Rules of the Company. Furthermore, I observed directly Board and staff discussions that made it clear that they were well versed in these rules and were making every effort to comply with them.

A second purpose of the review was to reach a judgment about whether the Program was managed efficiently and effectively. I note in this regard that the PNGSDP Board and management had already recognized the need to upgrade the capacity of the Company and management team and for that purpose brought in BCG whose report was made available to me. It is my understanding that

the Board adopted most of the recommendations of the BCG report at its 22 December 2006 meeting. In any new and growing organization, but particularly in one with the many unique features of PNGSDP, there is a constant need to evaluate whether the management structures are keeping up with the steadily expanding role of the Program. Bringing in the BCG consultants at this early stage was a responsible way to meet this challenge and is one of several indications that the Program is being efficiently and effectively managed.

The third purpose of the three year review was for the reviewer to reach a judgment as to whether the Program activities were being documented and whether current activities were taking fully into account their role in fostering the future development of the Program. Much of the remainder of the report deals at some length with issues related to this charge to the reviewer. At the outset, however, it is worth noting that program activities are operating in a very difficult environment where information and supporting infrastructure is often absent. Furthermore many activities require collaboration with government at both the national and provincial level, a collaboration that has often been difficult to achieve. Nevertheless, PNGSDP has started a significant number of important initiatives in a short time period some of which are now far enough along to warrant full project evaluations. As the discussion that follows will make clear, PNGSDP has not backed away from the challenges that it faces, but has taken a variety of important initiatives with skill and openness. It is too early to reach a judgment about how these various initiatives will work out in the end, but, in this reviewer's opinion, these efforts taken together are impressive and promising.

The remainder of this report is oriented as much to where PNGSDP hopes to go in the next few years as it is to what has been accomplished to date. Much of what in fact has been accomplished to date has been in preparation for a very ambitious future program. The main focus of

this report, therefore, has been to try to understand the strengths and weaknesses of that forward-looking program that is being planned and implemented.

The organization of the remainder of this report begins with a brief overview of the level of funding available to PNGSDP, both now and over the next seven years when the Ok Tedi Mine is scheduled to close. The section that follows looks at the development strategies proposed both for Western Province and for PNG more generally, and this section is divided into two parts. The first part is a review of the proposed large-scale projects designed to bring substantial development to Western Province. The second part will focus more on the various micro projects designed to contribute to development in Western Province and PNG more generally. This analysis of development programs and strategies will be followed by a discussion of the way PNGSDP is organized, the current and projected future number and skill categories of the people in the organization, and the nature of PNGSDP's decision making process and decision making criteria.

II. Funds Available to PNGSDP

As of the end of 2005, reported in the 2005 accounts, PNGSDP had US\$175.5 million in its Long Term Fund (for post mine closure activities) and US\$81.8 million in its Development Fund (for pre-mine closure). The latter was divided between the Western Province Program (US\$ 27.6 million) and the National Program (US\$54.2 million). More importantly, since 2005 high prices for copper and gold have increased these funds by a much larger than originally expected amount. As of January 31, 2007 there was US\$380.3 million in the Long Term Fund and \$164 million in the Development Fund (divided between US\$56.6 million for Western Province Program and US\$107.4 million for the National Program). If high prices continue, future payments will provide PNGSDP with a far larger level of funding than was anticipated when PNGSDP was first set up. Because

copper and gold prices fluctuate, no reliable estimate of the funds likely to be available in the future to PNGSDP is possible. However, if world demand stays strong and prices stay near or not far below current levels, PNGSDP could have as much as US\$ 1 billion in its Long Term Fund when the mine closes not counting Development Funds expended over that same seven year period.

If the mine does not close in 2013, the fund will be larger. Any extension of the mine beyond 2013, however, will probably involve underground rather than open pit mining that will produce much lower levels of ore, perhaps only one-quarter of what is being produced at present. Thus the PNGSDP Long Term Fund might continue to grow beyond 2013, but probably at a much slower pace than during the next seven years. A Long Term Fund of US\$ 1 billion could produce income for sustainable development uses of US\$ 40 million per year while maintaining the real value of the fund. However, the current rate of return on the PNGSDP portfolios (6.1% for the Long Term Fund, 5 % for the Development Fund over the past four years) may not be quite high enough to have a payout of 4% per year while putting aside say 3% to maintain the real value of the funds. A Long Term Fund that spent a larger share of its annual income than that represented by a 4% payout could produce a bit more and a lower rate of return on investments, a bit less than US\$ 40 million annually. If, as anticipated, PNGSDP funds are leveraged with funds from other organizations (private investors, the PNG government, the Western Province government, international and bilateral aid agencies), or if some PNGSDP activities or those of its subsidiaries prove profitable, the annual level of funding for PNGSDP related projects could be substantially higher. In fact, some of the development projects discussed in the next section would require billions of US dollars of private investment.

III. Western Province Development: Large-Scale Projects

Devising a realistic, effective policy for the sustainable development in Western Province is an extraordinarily difficult challenge. Currently the Province has very little infrastructure of any kind other than that provided in the North Fly District by the Ok Tedi Mine. The population is small (current estimates put the population at around 150,000 people), especially for such a huge land area (97,300 square kilometers), and much of the land is swamp and under water a substantial part of the year. The population is scattered in small villages throughout the province, a majority of whom have access to the outside world only by traveling long distances over land or along twisting rivers or by the occasional visit of small aircraft. The main river of the province has been highly polluted by the waste and tailings from the Ok Tedi Mine. Consequently most of the fish in both the Ok Tedi itself and in the Fly River have been severely depleted all the way to the Middle Fly.

Furthermore, while Western Province currently has very little infrastructure, what it has is due mostly to the existence of the Ok Tedi Mine. The facilities at Tabubil and Kiunga, the road between those two towns, and the electric power in them, and the better housing is due entirely to the mine. In addition, the North Fly mainly gets critical supplies including fuel oil brought up on the barges that come back empty except for these supplies after taking the output of the mine down to the mouth of the Fly. Probably most important of all, the Western Province government budget gets approximately one-fourth of the PNG government's revenue from the mine, or around K50 million per year, making it one of the richest provinces in terms of revenue in PNG. When the mine closes, this revenue flow will cease and Western Province income will fall precipitously. At the moment Western Province has difficulty spending the money it receives productively. Once the mine closes, it will be among the poorest provinces in PNG and will have trouble covering even basic salaries for teachers and health workers among others.

In other parts of the world, in a situation such as the one just described, the best development strategy might be to move most of the people out of the province to areas that are already undergoing rapid development and where jobs in industry, services, and agriculture are relatively plentiful. In PNG, however, much of the development that is occurring mainly provides employment for those with substantial education and technical skills. Western Province has relatively few such people although that situation will change as the education system is upgraded and expanded. Moreover, the demand for labor of all types is growing at a rate significantly slower than the growth of the supply of that labor. In contrast to many countries in Asia and in parts of Africa, there are relatively few low skilled jobs in labor intensive industries and services in PNG and no current prospects for the rapid expansion of such jobs. This situation is not likely to change soon because the rich natural resource base of PNG probably will continue to keep the real exchange rate of the PNG Kina comparatively high and this will discourage investments in garments, shoes, electronic assembly, and toys that provide so much employment of low skilled workers elsewhere. Migration of low skilled people out of Western Province would most likely result in an increase in the unemployed and semi-employed population in the receiving urban areas. Development that benefits the people of Western Province, therefore, needs to occur in Western Province.

PNGSDP, as a result, has been exploring alternative ways of achieving substantial growth in income and employment within the province. Consistent with strategies that have been used elsewhere in PNG (and with the Ok Tedi Mine in Western Province), PNGSDP has been looking into what could be accomplished in Western Province by means of a number of large-scale natural resource projects. None of these large-scale projects (other than the Ok Tedi Mine itself) currently exist and all would require large investments both for the projects themselves and for supporting infrastructure virtually none of which exists at present. Large-scale projects are not only needed for the revenue that they will contribute to the province and the country, they are also critical for

maintaining the little infrastructure that currently exists in the province and for expanding that infrastructure. Thus many small income and social sector projects depend on the development of at least a few large-scale projects.

An incomplete list of these potential large natural resource projects and the necessary accompanying infrastructure includes:

- 1) palm oil plantations in the area of Western Province suitable for palm oil. Palm oil, however, unlike say rubber, requires timely harvesting, processing, and shipment and hence considerable infrastructure that does not now exist.
- 2) sustainable value added forestry with a mixture of natural forest and plantations for the production of saw logs, timber processing and fibre for pulp and paper. These will go together with forest regeneration as well as conservation management.
- 3) development of thermal electric power in the North Fly area using the likely very large amounts of gas in this area as a fuel. This power could be connected to the Highland Grid as well as transmitted to the coast of Western Province.
- 4) the development of gas fields in the North Fly District that have been explored but have not yet been developed.
- 5) the movement of the gas and/or electric power by pipeline/high transmission lines to some location on the coast where (if it was gas fueled) a large electric power plant could also be constructed.
- 6) turning the gas into LNG for shipment elsewhere or into diesel or using it to power an aluminum smelter or some other energy intensive industrial process.
- 7) the processing of pyrite from the Ok Tedi Mine tailings into saleable products, and, at the same time reducing the negative environmental impact of the mine.

8) other copper and gold developments that could possibly tie into the infrastructure already present in Tabubil and Kiunga.

The infrastructure required by the latter part of this list of projects involves the construction of a pipeline (presumably by a consortium) or high transmission lines (again possibly by a consortium). If the gas pipeline went to the coast of Western Province, it might be possible to combine it with the construction of a road from Kiunga to the coast (along the pipeline) at lower than the considerable cost involved if the road had to be built across the swampy land that dominates the area between Kiunga and the coast. However, by building the road to the east of the province, a somewhat more favorable, hence less expensive route is possible. Alternatively, however, some of the gas fields so far discovered might instead be connected up to the gas pipeline being proposed for the fields currently under development in Southern Highlands Province, a decision that would no doubt provide revenue for Western Province, but little else of a developmental nature. The electric power plant in North Fly could run a transmission line down to the coast in Indonesia at Merauke and then back into the villages not far from the coast between the Indonesian border and the Fly River. Another possibility for transmitting significant amounts of power to villages on the eastern side of the Fly River would be to run a line from the proposed (and likely) 1,800 megawatt power plant on the Purari River east of Western Province that is being designed to supply power to a large aluminum smelter.

The one thing that many of these projects have in common is that they require a port in Western Province that does not now exist. PNGSDP has been doing studies to determine where such a port could be located and what the costs of development would be. The only feasible site found is Daru and the capital cost is estimated by Snowy Mountain Engineering to be over US\$100 million, a considerable sum if all of it were to be funded by PNGSDP's Development Funds even in the future

when the income from the Long Term Fund will be much larger. However, these costs may be inflated by using assumptions based on existing Australian and PNG conditions. In addition, the PNG government has already set aside funds for Western Province development and there are bilateral donors who also have set aside funds that could be used for this purpose. If one of these international or bilateral aid agencies or the PNG government can help defray these costs, the demands on the PNGSDP budget would be that much less.

The port would need to be built ahead of or in parallel with the demand for such a port. Thus there is considerable uncertainty involved in planning both the port and the natural resource projects that would use the port and this will have to be taken into account in estimating the benefits and costs of the port and related infrastructure. The risk involved with building a port ahead of demand and the similar risk connected with building a large pipeline without a working port in place could be ameliorated by making sure that there are users of the port that can expand incrementally—that is, they do not have to commit huge sums up front. The two above projects that would appear to fit this description are the sustainable forestry and wood fiber production project and the oil palm project. In both projects a minimum scale would be required, but the minimum scale (e.g. 14,000 ha in the case of oil palm) sufficient to justify processing facilities in Daru would involve much less up front investment than say a gas pipeline. The port itself might also be less expensive in its initial phase because the amount of dredging required would be much less for boats or barges bringing in and taking out wood fiber and palm oil, or rubber than the larger ships required for some of the other projects.

As for the road connecting the current Tabubil-Kiunga road to the coast or an electricity transmission line from North Fly or a neighboring province down through the above described round about path to the coast, there is no doubt that the benefits to all the people within reach of the road or transmission line would be considerable. People in Western Province can and do regularly migrate to

areas where they get road or other access, so the numbers benefited would be much greater than would be the case if one assumed that villages and homes were fixed in their current locations. Whether these benefits to a significant portion of the Western Province population would justify the considerable costs of these projects is well beyond this review. At present there do not appear to be any real estimates of the costs of the road and, when such estimates are made, the swampy nature of the land traversed (and the need to bring in construction materials from outside the province) will ensure that the cost will be considerable. However, by building the road (and gas pipeline) perhaps 50 or a bit more kilometers from the eastern border of the province, there would be less need to traverse swampy land.

Despite all of these qualifications, if some version of this large-scale natural resource project strategy is carried out successfully, there is every reason to believe that it will substantially increase the average per capita GDP of Western Province and the revenue of the national and provincial governments longer term post mine closure. During the construction phase, there should also be many jobs for people from Western Province, although considerable numbers of outsiders with special skills will also have to be brought in. To achieve this impact on income and employment, all of these projects do not need to be underway immediately. Given the number of people in Western Province, one major project would get the process started in a significant way.

It is beyond the scope of this review to judge the social impact of the migration that might result from these projects, but PNGSDP clearly needs to think carefully about this. The current PNGSDP plan to conduct a major, broad-based social and economic survey of all of Western Province is a priority and will provide some of the information needed to make informed judgments about the social impacts of these projects.

If a decision were to be made to connect the future Western Province Highway system to the Highlands Highway, for example, the social impacts of such a project could be even larger and would certainly require a very careful social impact study.

The large-scale natural resource development strategy, therefore, has lots of potential but it is surrounded by more than the normal level of uncertainty about long term economic and social and environmental impacts in the medium term. The uncertainty comes mainly from the fact that the natural resource and infrastructure projects must be built more or less together to succeed. That said, this strategy is the only “game in town” if PNG and PNGSDP want to substantially raise the average income and income growth rate of Western Province in the short term.

IV. The Small-Scale Development Project Strategy

I have labeled the other major development strategy being pursued by PNGSDP the small-scale strategy to describe the many different kinds of income generating projects under this heading. These projects include agricultural projects such as small holder rubber and palm oil, eco tourism, fisheries, rural electric power based on solar panels and diesel generators, and microfinance banking services among what no doubt are many other income producing projects. An expanded road network or a major source of electric power would open up all kinds of other activities, initiated by individuals, groups, and companies.

I will start with microfinance and then I will comment briefly on a number of additional areas based entirely on what I have heard from others, including the program officers of PNGSDP.

The microfinance banking services of savings and loan offices that is currently in place is not yet profitable, but the plan is for this company to come out of the red within a year or two. The main problem at the present is on the lending side where non-performing loans are 13% of the portfolio

and the costs of making a loan are roughly double what they need to be to break even on the lending side. It is planned to achieve profitability even though many of the microfinance branches to date have been set up in Western Province where the size of the activity together with fixed costs make it difficult to be profitable in the early days. PNG Microfinance, however, also has a branch in Port Moresby (actually a savings branch in Koki and a loan operation in Boroko) which is sizeable and growing rapidly.

There is no question that microfinance fills a critical role or has the potential to fill a critical role in the lives of a majority (up to 90%) of the citizens of PNG. The Bank of the South Pacific (BSP) has a clear policy of excluding small accounts by charging fees large enough to substantially reduce in short order the savings accounts of most people in PNG.* The other banks in PNG seem to have even less interest in microfinance. Thus the PNGSDP microfinance operation has little competition in most of the country.

Large banks generally believe that it is impossible to make money with small savings and loan accounts, but the principles involved in making microfinance profitable are straightforward. The spread between lending and savings rates must be substantial and that is the case with PNG Microfinance Limited (PNGMFL), but that still means that the lending rates are far below those of local money lenders and the savings interest rates are well above those provided by the typical large bank (which in the case of BSP are strongly negative). The other major task is to get the incentives and technical skills right, particularly on the lending side, for the local branch managers and employees particularly with respect to what happens when non-performing loans begin to rise. If the branch is in a rural area, and possibly in an urban area as well, there needs to be an active outreach function where branch officers go to the customers rather than simply waiting for the customers to

* BSP, for example charges a fee of K3 per month on Kundu savings accounts of less than K1000. For a savings account of say K300, therefore, the annual fee would be K36 which is equivalent to a negative interest rate of well over 10% per annum. PNGMFL at present does not charge any fees on its savings accounts although it is currently studying whether this zero fee policy is sustainable.

come to them. The security problem in PNG adds another dimension to small-scale banking.

Although the security problem is not unique to PNG, it is more serious in some parts of PNG than in many other countries. Given that the savings function of these microfinance offices is by itself an invaluable service to the population, thought might be given to promoting savings accounts (that are growing rapidly in any case) and going a bit slower on lending until any problems on the lending side are worked out.

Probably the best strategy for PNGMFL is for the program to concentrate on making it work in some of the more developed areas with the potential for large amounts of savings deposits and, further down the road, large numbers of performing micro loans. PNGSDP could further subsidize the effort in a few areas, mainly in Western Province, that are not yet commercially viable as it in fact is already doing. With the increasing profitability of the developed area branches, PNGMFL could spread into other less commercial areas outside of Western Province without a subsidy from PNGSDP. The social benefits of having a banking service available to the population at large rather than limiting it to just a few wealthy urbanites and the larger companies is likely to be enormous. Teachers in parts of Western Province, for example, must now take several days off from teaching to travel to Daru to get access to banking services.

Rural electrification also brings large benefits to people who otherwise must rely on kerosene lamps and the like. The PNGSDP program to bring solar lighting to a number of villages in the South Fly, for example, has clearly brought important benefits to the recipients. All of this activity requires subsidies at present either from PNGSDP or others. Clearly a major power transmission line into the most populated parts of the province, especially if done together with a road, would transform what was economically possible in these areas. PNG Sustainable Energy has so far been carrying out these small projects with subsidies from PNGSDP, and plans to do so from the large profit margin on the sale of electricity to non-mine users in the Tabubil-Kiunga corridor. The effort

would be commercially viable without subsidy if PNG Sustainable Energy could get authorization to build one or more major power projects that could supply gas fueled thermal electric power to the prospective smelting operations on the Western Province Coast, to the Highland Grid, or to the Sepik-Wewak region. Some of these projects appear to be viewed by PNG Power and some others to be competition. Hence the licenses to go ahead have not been forthcoming. The informed population in the highlands, however, and users on the north coast of PNG (Ramu Nickel), are well aware that they would benefit from being connected to the sources of power being developed by PNG Sustainable Energy Limited (PNGSEL).

Oil palm has already been mentioned. It is like rubber in that it can be carried out by small holders as well as by large estates. Rubber requires less infrastructure than oil palm but does have to be processed and distributed, mostly as exports. There is considerable opportunity for improving the rubber planting and tapping procedures used by small holders via extension worker support rather than direct subsidies. Palm oil requires a fairly large-scale and well managed transport and processing infrastructure including a port. Initially, however, for palm oil the port would not have to be dredged to a depth suitable for large LNG tankers and the like and so could reduce the initial costs of such a port. It is possible, therefore, that the port could start with the capacity to handle 40 thousand ton tankers for say diesel oil converted from gas and could then move up later to 60 thousand ton tankers. PNGSDP has been involved in a number of other income generating projects that will only be mentioned as examples because time was limited.

Western Province has tourism potential. Judging from the internet and the Lonely Planet guidebook, it is already attracting some of the more adventurous tourists, notably those interested in birds or fishing. Tourism, however, is also an area where the infrastructure is almost non-existent. Transport within the province by plane or helicopter is possible but expensive. Accommodation falls short of minimum standards for most tourists. Cloudlands Hotel in Tabubil is the best at present. It

is clean with good but ordinary food, but is best located for those visiting the mine on business, not those who want to relax and enjoy the scenery and the birds. PNGSDP is exploring the possibility of investing in a quality hotel in Daru as a jumping off place for tourism in the region among other uses. Such a hotel would be developed by a commercial hotelier perhaps with some PNGSDP support initially. Given the range of potentially dramatic tourist sites (e.g. the Hindenburg Wall, the Tonda Wildlife Management Area, and the birds) this effort would appear to be low risk and could end up employing hundreds of people in the province if supporting eco-lodges and the like were also developed in key spots and if there were training facilities for them.

PNGSDP is currently undertaking to restock the South and Middle Fly areas with barramundi from a fingerling breeding hatchery on Daru. This will be implemented by efforts to protect the habitat of Barramundi in the region as well as aquaculture. The main problem for aquaculture is the high cost of fish feed that must be imported from Australia. No domestic source of feed appears to be possible in the near future. PNGSDP, however, is working on an effort to develop a domestic PNG feed mill that would rely mainly on herring and vegetative matter. Anything that could partially restore the fishing in this region is desirable. How much of the considerable decline in fishing in the region is due to the impact of mine tailings and how much is due to over fishing is not clear.

This list of potential micro projects is far from complete, but they have potential to employ thousands or even tens of thousands of local residents (oil palm for example) provided that some key skills are also brought in from outside. A major expansion of oil palm is the one project in this area that could require large-scale importation of labor from the highlands or elsewhere as it did in West New Britain. There are simply not enough potential oil palm small-holders or workers in Western Province to plant, maintain and harvest that 100,000 or so ha of oil palm that might eventually be developed (only around 14,000 ha needs to be developed to make the project a success). Whether the

impact of such a migration from the highlands and elsewhere into Western Province would have the relatively benevolent impact that it did in West New Britain is an issue that would have to be looked at very carefully.

V. Social Sector Programs

PNGSDP is already supporting a variety of programs in health and education. In addition, many of the projects already discussed have a significant social component. Microfinance, for example, addresses issues such as providing an avenue that allows women to better manage family finances and protect their earnings from being appropriated by their husbands for non-family related expenses. The provision of rural electrification has implications for both rural health and education. For the most part, however, projects targeted directly at the social sectors are not income generating projects. Social sector projects, unlike many of the income generating projects, are carried out under the auspices of the Community Sustainable Development Program (CSDP). These projects have one major advantage over many of the income generating projects in that they meet immediate needs that can be and are highly visible to the people in Western Province. Given the long gestation period involved in so many of the other PNGSDP projects, a period when many in Western Province are complaining that they aren't seeing any real benefits, such immediate impact programs both meet a need and are seen to do so.

PNGSDP recognizes that such projects are of value. Rumginae Hospital serves a wide area of Western Province in part through flying visits with one of the planes supplied by PNGSDP. The program has provided essential pieces of medical equipment and plans are underway to replace the current diesel generator (the only one of three still operating) with a larger system that serves that

whole village and school. Similar health support has been provided elsewhere in the province and within PNG more broadly. PNGSDP has embarked on a measured and targeted approach to the contribution it can make to the fight against the spread of HIV/AIDS, beginning with internal corporate policies to which all staff are committed. It is a major sponsor of the PNG Business Coalition Against HIV/AIDS and in piloting “Community Conversations” to empower communities to protect their communities from the spread of the disease. PNGSDP’s HIV/AIDS advisor works along similar lines with Church and Community Groups in PNG. PNGSDP should not get involved in paying salaries and other recurrent costs of regular health programs that are clearly the responsibility of the provincial government, but it is not difficult to identify fundamental needs outside of the regular recurrent cost area.

PNGSDP has also contributed to programs involving education and training in specific areas such as agriculture. There are plans to strengthen the technical training school in Tabubil as one institution that could provide for the continuing upkeep of the rich infrastructure base that now exists in Tabubil and in the Tabubil Kiunga corridor. It would also meet the training needs elsewhere in PNG as well as those required by PNGSDP’s projects as they develop.

Much more could be done in this social area that would not affect development of the income generating projects. It should be possible, for example, to establish a major scholarship program to cover the considerable fees involved particularly at secondary (and for a few people tertiary) levels of education. The scholarships could go to those who meet a certain academic standard and perhaps also a need standard, but most people in Western Province outside of the Tabubil area would probably meet the need criteria. This review is not the place to try to design such a program, but even a modest sum of US\$ 1 or 2 million could make a substantial difference to the more highly motivated students and their families. Nearly half of the population of Western Province is below the age of 15 (44.6% in the 2000 census) and two-thirds of the population above the relevant age has

completed six years of schooling but only 12.2% has completed 10 years of schooling. These census figures imply that roughly 3,000 students per year graduate from primary school. Scholarships for a thousand of the best of these students to cover the next 4 to 6 years should be well within the capacity of the PNGSDP budget.

Another advantage of social programs of this sort or ones like them is that they are simpler to manage than programs that must become commercially viable. By saying that they are simpler to manage than some of the income generating projects does not mean that their administration would be easy. One would have to work out a method whereby the scholarship funds did not get diverted to uses other than those for which they are intended, never an easy process in PNG or in most developing countries. There would also have to be a reliable way of measuring student achievement if only the better students are to receive scholarships. Administering such programs on a PNG wide basis would be both expensive and an even larger implementation challenge and no such program is suggested here, but confining the effort mainly to Western Province should be manageable by a relatively small number of people with integrity plus good administrative skills but without the business or engineering skills and experience required by so many other projects being undertaken by PNGSDP.

VI. PNGSDP Contributions to PNG Wide Programs

Several of the PNGSDP efforts that have contributed to the development of Western Province, have also contributed to the development of other provinces in PNG. This is true of microfinance. It is also true of roads some of which are being constructed or improved by PNG Sustainable Infrastructure Limited (PNGSIL). Probably the largest potential contributors at present to developments outside Western Province are the power developments of PNGSEL.

Funding is not the main barrier to doing more in this general development area. There are many multilateral and bilateral donors who would be happy to partner with PNGSDP's subsidiaries. The main problem, as it is with many infrastructure projects within Western Province, is with barriers institutional and political initiated at the provincial and national levels. With full cooperation from government, a great deal is possible.

VII. The PNGSDP Management Model

PNGSDP is implementing or planning on an extraordinary range of development projects. The core full time management team at PNGSDP consists of the CEO, a Chief Program Officer or CPO, a CFO, and half a dozen or so program officers and some part time consultants. The Board is a very active one that meets four times a year with individual members involved in PNGSDP activities on an ongoing basis between Board meetings. When all of these people are added together, one has a total of perhaps 20 or so people plus a larger number of very able supporting personnel. This group is charged not only with coming up with an effective economic and social development strategy for Western Province and for PNG more generally, but also with setting in place the mechanisms for implementing that strategy.

The primary method for implementation of projects of any size is to turn over implementation of these projects to a subsidiary company owned or partly owned by PNGSDP. These other shareholders bring relevant technical expertise. So far there are two such subsidiary companies, PNG Sustainable Energy Limited (PNGSEL), co-owned with Snowy Mountain Engineering Corporation (an Australian company), and PNG Microfinance Limited (PNGMFL), co-owned with the Bank South Pacific (a PNG private bank), the International Finance Corporation, and

under negotiation with the European Investment Bank and BASIC of India. A third subsidiary, PNG Sustainable Infrastructure Limited (PNGSIL), is in the process of formation although it is still as of now an integral part of PNGSDP. Large projects such as a gas pipeline would be carried out by a major oil and gas company or a consortium of smaller companies. Other firms would be involved in forestry and palm oil initiatives.

PNGSDP from the outset has planned to keep the Program's internal staff relatively small and to rely on cooperating companies to manage major initiatives in areas such as electric power and microfinance. The alternative of building a large staff capable of directly managing the many development initiatives being planned makes little sense for a new program such as PNGSDP that is building up from scratch and such an effort would be very risky at best in any developing country context. PNGSDP has instead set up two very able cooperating companies and has put in place top flight management for these two subsidiaries. There is a good prospect that these two subsidiaries will not only implement the tasks given to them, but also have a substantial chance of turning a profit for the Long Term Fund of PNGSDP.

That said, further thought may have to be given in the future to adjusting the relationship between PNGSDP, a not-for-profit firm, and its partners in these subsidiary companies that are for-profit firms. The key is to ensure that the for-profit entities have enough incentive to take on the risks involved. Structuring these incentives for this purpose without triggering criticism from outside that PNGSDP is "giving excessive benefits to private entities" will be a challenge.

Furthermore, PNGSDP has not yet had to deal with a partner company or management of a subsidiary that turns out not to be of the high quality expected. It is not clear how PNGSDP would deal with a situation that required a fundamental restructuring of a subsidiary's management or of dismissing an unreliable partner if such were to occur. In the present situation, that task would appear to fall on the CEO and/or the Chairman of the Board. This risk needs careful consideration.

Many of these issues have already been looked at for PNGSDP by the Boston Consulting Group office in Melbourne. One focus of the BCG review was the internal management of PNGSDP itself, but the review also dealt with the issue of managing the oversight of the subsidiaries. One of its principal recommendations is that PNGSDP should broaden the skill sets of its program teams to include experience in starting up and managing firms. These start up and management specialists, at least initially, are likely to be part time advisory rather than staff positions. Presumably some of these new staff members would have to be resident in PNG, however, and not just consultants coming in occasionally from outside the country. Otherwise, PNGSDP will have to narrow down the range of projects that it undertakes, perhaps not now but further down the road as projects are found to be more or less possible.

The PNGSDP staff is impressive. The program leaders have a wide range of technical skills and I saw more than a little evidence that they were fully dedicated to their various tasks. There is a zero tolerance policy for even minor levels of improper use of funds and I learned this not so much from the briefing by the CEO as from remarks made in passing by others. The staff has been selected with integrity and commitment as a major consideration. The only mild criticism I have heard of the PNGSDP staff is that too many of them come out of a civil service background rather than a more business oriented and entrepreneurial background. This is probably inevitable for a skilled staff in PNG at this stage of the country's development. Many of the ablest people do go into government and the ablest business people in PNG are probably not available for hire by PNGSDP.

Finally a word should be said about the criteria for project selection in PNGSDP. From this reviewer's observation, the main criterion seems to be commercial viability at least for the income development projects subject to an allowance for a subsidy for projects in Western Province. This reviewer is not suggesting an elaborate, fully worked out set of project appraisal criteria for the income producing projects, but a clear, less formal statement of the principles being followed might

be desirable. That said, in the highly uncertain world of Western Province development, the main task at the moment is to try to identify projects with potential and then find the entrepreneurs who can see that potential. Imagination in this context is more important than careful quantitative calculations. It is these private entrepreneurs who will have to determine whether a given project is viable or not. With respect to the social sector projects, from my limited observation, the money has been well spent, and procedures have been carefully worked out that applicants for funds must follow (an example of these procedures is attached as an appendix). My only suggestion with respect to social sector projects is that the board and the senior staff might be as proactive in this area as they are already with respect to the income generating projects. Much can be accomplished by responding to the proposals of the medical and education personnel who will use and benefit from PNGSDP grants, but more could be accomplished with a fully worked out strategy in this area to go with the existing income generating strategies that are already well underway.

VIII. Conclusion

The main conclusion of this report is that PNGSDP has made remarkable progress in a very short time frame in carrying out its very complex and demanding mandate. Two subsidiaries are up and running, delivering real services both in Western Province and across PNG more generally. An able staff is in place that is taking the lead in investigating potential new projects. Some of the staff, notably the Chairman and CEO, appear to be a bit stretched. My recommendation here is that the implementation of the BCG report is critical.

The basic focus of the PNGSDP effort seems appropriate for the most part, but more emphasis could be placed on supporting key social infrastructure (health and education) with programs that should be less difficult to implement than the large-scale income development projects. It is the income development projects that have the capacity to fundamentally transform

Western Province and PNG, but many of them take a long time to develop because of technical and political barriers and thus many will be invisible to potential beneficiaries for some time. The social infrastructure projects are highly visible and typically can be implemented within a shorter time frame.

APPENDIX A: Persons Interviewed*

PNGSDP Personnel:

Mr. Robert Igara, Chief Executive Officer
Mr. David Sode, Chief Program Officer
Mr. Vere Avara, Chief Financial Officer
Ms. Susil Nelson, Manager, Corporate Governance and Special Projects
Ms. Fae Maso, Personal Assistant to the Chief Executive Officer
Mr. Joe Ikau, Chauffeur/Office Assistant

Mr. Colin Travertz, Coordinator and head of Kiunga Office, Western Province Programs
Mr. Jaru Bisa, Program Manager, Environment and Sustainable Fisheries and Tourism
Mr. John Kassman, Community Projects Coordinator (National)
Mr. Kanawi Pours, Program Manager, Sustainable Forestry
Mr. Keith Armstrong, Consultant, Agriculture
Mr. Ashley Emerson-Bain, Consultant, Finance

Board of Directors:

Dr. Ross Garnaut, Chairman
Hon. Jim Carlton (in Melbourne as well as PNG)
Ms. Patricia Casswell (in Melbourne as well as PNG)
Mr. Lim How Teck (in Singapore)
Mr. Don Manoa
Dr. Jakob Weiss
Sir Ebia Olewale
Ms. Madelyn Kwang, Company Secretary (in Singapore)

Advisory Council:

Ms. Felecia Dobunaba, Chairlady

PNGSDP Subsidiary Companies:

PNG Microfinance Limited:

Mr. Keith Akane, Acting Managing Director
Dr. Brian Scott, Member, Board of Directors (in Sydney, Australia)
Manager of Koki Branch
Manager of Tabubil Branch (in Tabubil, PNG)

PNG Sustainable Energy Limited:

Mr. Peter Martin, Chief Executive Officer
Mr. Rodney Simms, Chairman (in Sydney, Australia)

PNG Sustainable Infrastructure Limited:

Mr. Ken Baxter, Chairman (in Sydney, Australia)

Mr. Aloysius Aihi

Government of Papua New Guinea:

Sir Rabbe Namaliu, Minister, Department of Treasury
Mr. Simon Tosali, Secretary, Department of Treasury

Ok Tedi Mining Limited (in Tabubil, PNG):

Mr. Keith Faulkner, Managing Director, OTML
Mr. Michael Miise, Community Relations Office

BHP Billiton (in Melbourne, Australia)

Mr. Ian Wood, Vice President Sustainable Development
Mr. Graham Evans, negotiator of BHP-PNG government agreement

Rumginae Hospital, Rumginae, PNG

Dr. Adeline Sittther, Medical Superintendent

Other:

Mr. Warren Dutton, North Fly Rubber (briefly in Western Province)
Sir Michael Curtain, Chairman, Curtain Bros
Dr. J. Roland Williams (in Melbourne, Australia)
CMCA Leaders meeting with PNGSDP Board (in OTML offices, Port Moresby)

Boston Consulting Group (in Melbourne, Australia)

Mr. Larry Kamener, Director

(efforts were made to contact other National and Western Province government officials but their schedules did not have openings during the time that the reviewer was in PNG)

APPENDIX B: Itinerary of Reviewer (February and March, 2007)

February 9-11	Boston, USA to Sydney Australia
February 12	Interviews in Sydney Australia
February 14-15	Interviews in Melbourne Australia
February 18	Cairns, Australia to Port Moresby, Papua New Guinea
February 19-21	Interviews and meetings in Port Moresby
February 22-24	In Tabubil, Tabubil Kiunga road to Rumginae, and return on Airlines PNG via Daru
February 25-28	Interviews and meetings in Port Moresby
March 1	Port Moresby to Singapore
March 2	Board meeting in Singapore
March 3	Singapore to Ho Chi Minh City, Vietnam

APPENDIX C: Sample CSDP Evaluation Criteria