



# Technical Assistance Consultant's Report

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## Republic of Palau: Facility for Economic and Infrastructure Management

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For Government of Palau  
and Asian Development Bank

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**Asian Development Bank**

April 2008

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## Facility for Economic and Infrastructure Management Project

### Privatization and Corporatization Options for the Bureau of Public Works

#### Working Paper 3



**Prepared for:**  
Government of Palau and Asian  
Development Bank

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## Acronyms

BPW	<i>Bureau of Public Works</i>
GoP	<i>Government of Palau</i>
RAMS	<i>Road Asset Management System</i>

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## EXECUTIVE SUMMARY

1. This Working Paper summarizes opportunities for improved productivity and increased private sector participation in the various activities currently performed by the Bureau of Public Works (BPW).
2. BPW provides a variety of services to the Government. In most cases there are few synergies between these services, which therefore operate as discrete operations loosely connected under one umbrella organization. Unlike PNCC, BPW operates as a Government Department, with no profit targets, and with weak financial controls. There are few incentives to improve performance, and productivity suffers from underutilization of resources – partly attributable to intermittent release of funds to cover activities.
3. Regardless of whether or not there is future involvement of the private sector in activities currently performed by BPW, the report strongly advocates the introduction of an improved rolling three year plan that focuses on outputs and includes for each major activity the financial and cash flow projections and prioritized capital investment proposals. Present quarterly reporting should be discontinued in favor of reporting against performance targets set out in the annual plan. Assistance may well be required with development of the initial plan.
4. BPW is dominated by water and sewer costs, which account for 51% of total expenditure. Expenditure increased by 24% in the period 2005 – 2007, featuring a 68% increase in administration costs and a 66% increase in costs for water treatment. These increases were offset by reductions in expenditure in a number of other areas such as water and sewage connections (expenditure down 49% and 18% respectively), and rural sanitation (down 15%).
5. The Working Paper reviews each major activity performed within BPW, and identifies opportunities for performance improvement or private sector involvement.
6. The **Facilities and Maintenance Group**, providing carpentry, electrical equipment and air conditioning servicing, and plumbing services to Government agencies, appears to have very low productivity. Based on the quarterly report ended September 2007, the group processed only two jobs per person per quarter – with a number of these being quite small. The private sector is already capable of providing these services, but is at a competitive disadvantage because BPW only charges user Departments for materials, not labor. The report concludes that it is hard to justify retention of the Group, and that all such services should be contracted out to preferred private sector suppliers, who would also be offered the opportunity to lease the workshops currently used by the Group. User Departments would notice a small increase in costs, because in future they would be required to meet labor as well as material costs, but Government would no longer be required to fund the salary and wage costs, and premises costs, for the work group and normally the private sector would be more efficient in the use of labor, materials and capital. Preference in awarding contracts could be given to employers willing to take on surplus labor, but in the event that alternative employment cannot be arranged for all staff, then some form of severance compensation needs to be developed.
7. The **Road and Equipment Division** has scope for improved infrastructure management through the introduction of prioritized road maintenance programs based on some form of Road Asset Management Systems (RAMS), linked to a prioritized capital investment program for new road construction or rehabilitation. Something closer to a “whole of life” view of road assets needs to be considered, although in all probability

the ideal situation will not be affordable. Road maintenance is an area that is of interest to private sector contractors in Palau, and presents an opportunity for improved performance. The Working Paper suggests (i) small scale community based contracts for routine maintenance that do not require extensive capital investment (such as drainage clearance and grass cutting), and (ii) the introduction of output based maintenance contracts for other road maintenance requiring higher levels of capital investment and staff skills, available to the private sector for selected pilot locations. These contracts should be of sufficient duration (say 3 years) to justify the private sector investing in plant and equipment, and staff training, to be able to offer competitive quotations. BPW should provide comparative quotations for performing this work, so that a cost comparison can be made with the private sector. Contract management would remain a central function, using the output based performance standards. Care must be taken to ensure that there is fair competition within the private sector – for instance by ensuring that no single provider is in a dominant position because of access to raw materials such as asphalt. If the model is successful it can be extended.

8. The **Water and Sewage Group** offers potential for private sector involvement in the medium to long term, but not the short term. At present there appear too many unresolved issues, such as the level of future investment required; tariff and cost recovery policies, and system losses, all of which need to be resolved before a sound privatization or public private partnership policy can be implemented. In the short term, it is suggested that there may be benefits from employing a short term contract manager to complete a full audit of operations and to assess the financial potential and investment requirements of the sector. This is seen as a precursor to possible corporatization, and then increased private sector involvement, probably through an operating concession.

9. **Solid waste management services** are at the threshold of requiring a major capital investment and development of a new landfill site, given that the present landfill site at M-Dock is likely to reach the end of its life in 2102. This appears to be an ideal opportunity to introduce a Build, Own, Operate Concession (BOO), under which the private sector takes on full responsibility for the future facility. Prior to such an opportunity being advertized, a regulatory framework is required, together with policy decisions on tariffs, subsidies, recycling policies, and environmental controls that must apply to the new development. If a BOO policy is adopted, Government will avoid the need for capital investment in the new landfill facility.

10. Rural sanitation services could be opened up to the private sector, but not before suitable performance standards are introduced, and a policy on cost recovery or subsidy is introduced. It is suggested that the manager, because of his experience, be requested to draft the necessary standards and develop financial models to indicate alternative cost options. Once these are completed, privatization and private sector bidding could be considered, with the option of a management buyout for this service.

11. Finally the report recommends no change to the **Design and Engineering Services**; and contracting out **Unexploded Ordinance Services**.

12. Each of these options needs to be considered by the Project Steering Committee, and guidance provided to the consultant on which should be pursued in greater detail in the remaining inputs of the study, bearing in mind the limited time remaining available.

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## BUREAU OF PUBLIC WORKS – MAIN FINDINGS

### A. Objective of Paper

1. The objective of this working paper is to summarize the situation relating to the work of the Bureau of Public Works (BPW), and possible opportunities for some form of privatization or greater private sector participation in activities currently being performed by the Bureau.
2. The context of this Working Paper is the requirement for the consultant to:
  - (i) Consider all facets of service delivery, including cost, cost effectiveness and efficiency; and
  - (ii) Consider viable alternative public service delivery modalities through public private partnerships, state owned enterprise reform or possible privatization.
3. The analysis has been based on (i) the present performance of BPW; (ii) projected requirements for future operations; and (iii) wider national policy and privatization considerations across all sectors, to ensure policy consistency.
4. The assessment has been completed in close collaboration with BPW, who are thanked for all their considerable assistance.

### B. Bureau Overview

5. The BPW accounts for 62% of expenditure of the Ministry of Resources and Development.
6. BPW has recently reorganized, to achieve greater efficiency. It has four Divisions and a number of specialist offices, as follows:
  - (i) Division of Facilities and Maintenance
  - (ii) Division of Road and Equipment, including:
    - (a) Equipment Branch;
    - (b) Road and Ground Maintenance;
    - (c) Compact Bridge and Road Maintenance;
    - (d) Solid Waste Management (retained as part of Road and Equipment because of the expertise of individuals).
  - (iii) Division of Design and Engineering;
  - (iv) Division of Utilities, including:
    - (a) Water Connections;
    - (b) Water Treatment Plant;
    - (c) Sewer Connection Unit;
    - (d) Wastewater Treatment Plant;
    - (e) Rural Sanitation Project.
7. Additional Specialist Offices exist for:
  - (i) Administration;

- (ii) Energy;
  - (iii) Unexploded Ordinance/Safety;
  - (iv) Capitol Maintenance.
8. The Director reports to the Minister, and, through him to the President.

### **C. Planning and Performance Management**

9. BPW provides a three year Budget Performance Report, and Quarterly Reports to the Minister. The 3 year plan is general in nature, and does not include detailed financial projections or quantified performance targets and deliverables<sup>1</sup>. Governance and performance measurement is therefore difficult.

10. The Quarterly Report contains considerable detail of individual tasks. For some operations it quotes the number of Job Orders processed, and the nature of the work<sup>2</sup>. Some operations, such as the Water Connection Unit, quote the number of new installations; for other operations, the information is more in the nature of a diary of activities. Only two Divisions in the Report for the period to September 2007 quoted summary expenditure, but not against plan. The Quarterly Report does not comment on progress against plan – but this is not possible given the lack of quantified performance targets.

11. There is considerable scope to improve governance of the Bureau, by providing management with better control tools. As the old management adage says, “if you cannot measure it, you cannot manage it”. This is true regardless of whether there is greater private sector participation in the sector or not. It is also vital that BPW introduces improved productivity tools if it is to be sure that internal services are as cost and quality efficient as those which can be provided by the private sector. Such a change provides an opportunity to eliminate non value added reporting, some of which is demonstrated in the current management Quarterly Progress Report.

12. The following approach is fully compatible with the intention expressed in the Three Year plan, at least for the Water and Sewer Connection Branch, to “create daily, weekly and monthly working plans and schedules” (part of Goal 3).

**13. It is recommended that GOP improve the planning and performance management processes for BPW by:**

- (i) Supporting generalized statements and good intentions with quantified monthly performance targets for each major activity for each sector, to enable an output based approach to budgeting to be adopted. In the initial stages this need not be complicated e.g. miles of road repaired to acceptable standard; % of time on planned maintenance; volumes of water supplied; water system losses (metered water supplied as percent of total water treated); equipment utilization/breakdown time for major infrastructure such as water supplies
- (ii) Providing a rolling three year forecast of future capital expenditure requirements by activity and need.

<sup>1</sup> “Objective: Improve, operate and maintain programs, services, and key infrastructure in an efficient manner....; Review and evaluate existing programs, plans for new activities and projects....; Utilize to the fullest extent available resources to further improve efficiency and effectiveness.....

<sup>2</sup> “Construct office door”; “Change tile”; “Repair door knob”

(iii) Including in the annual plan the monthly financial forecasts by major activity, indicating the breakdown between main categories of expenditure (staff, fuel, materials etc).

(iv) Including in the annual plan the monthly projections of capital expenditure and percent of job completed for all major projects undertaken by BPW or the private sector working on contract.

(v) Providing forecast and actual expenditure of any private sector contract work, and quality of output.

(vi) Discontinuing the existing Quarterly Report to the Minister, but replacing it with a timely report (within 3 weeks of month end) against annual plan targets.

(vii) Sharing all these targets with staff at all levels within individual Departments.

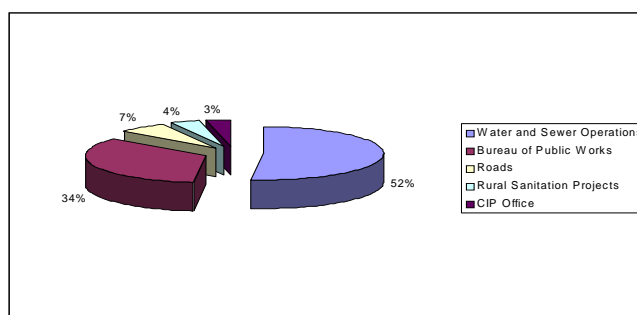
(viii) Reporting on simple internal costing systems that measure performance – for instance, person hours per job order.

14. The recommended changes will provide increased capacity for senior management of BPW to manage activities of individual units against defined results, and improved governance capacity to monitor long term productivity trends against agreed performance targets. They will therefore place the public sector on a similar footing to what is considered good practice in the private sector. They will also position the Bureau better to manage contracting out to the private sector if such a strategy is followed in the future.

#### D. Financial Trends

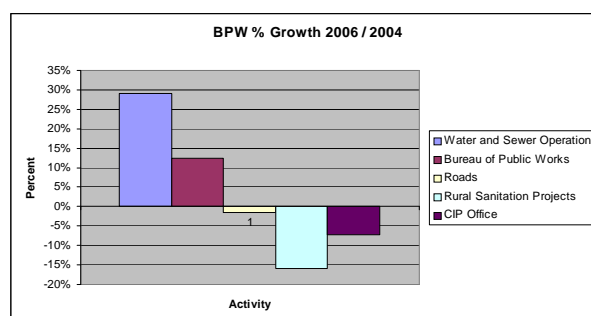
15. 51% of BPW expenditure relates to water and sewer operations; 7% to roads; 7% to Rural Sanitation; 4% to CIP activities and 34% to other BPW activities (Figure 1).

Figure 1 BPW Expenditure 2007



16. In the period from 2005 to 2007 the total expenditure for BPW increased by 24%, with particularly marked percentage increases in Administration (68%) and Water Treatment Plant (66%). However, as indicated in Figure 2, expenditure on a number of activities, in particular rural sanitation projects, actually declined. There were also significant differences in expenditure patterns within the Division of Utilities.

Figure 2 BPW Expenditure Changes 2004-07



17. Table 1 indicates financial expenditure by main categories of operations, and the percentage change over the period quoted.

**Table 1 BPW Expenditure**

Budget Activity	2005		2006		2007		Change
	Budget	Actual	Budget	Actual	Budget	Actual	
			\$				
<b>Public Works</b>	<b>1,345,000</b>	<b>1,336,304</b>	<b>1,539,000</b>	<b>1,474,482</b>	<b>1,674,000</b>	<b>1,671,381</b>	24%
Bur Public Works Admin	353,500	396,757	282,000	384,652	600,000	594,362	68%
Facilities & Maintenance	307,000	337,209	389,000	340,229	350,000	331,243	8%
Road & Equipment	210,000	201,640	250,000	223,583	224,000	240,709	15%
Support Branch	474,500	400,698	471,000	436,636	500,000	505,067	6%
Bulldozer/Excavator (Earmarked)			97,000	84,188	0	0	
ODA Banking Fees (Earmarked)			50,000	5,194	0	0	
<b>Water &amp; Sewer Ops (Div of Utility)</b>	<b>2,065,000</b>	<b>2,077,778</b>	<b>2,319,546</b>	<b>2,213,115</b>	<b>2,384,000</b>	<b>2,380,324</b>	15%
Water Connection	402,600	156,364	153,346	188,933	304,000	204,640	-49%
Water Treatment Plant	759,700	989,313	1,050,400	1,239,581	1,045,000	1,264,477	66%
Sewer Connection	53,400	49,173	65,500	49,767	100,000	43,930	-18%
Sewer Treatment Plant	469,100	405,639	645,100	334,501	575,000	510,591	9%
Outlying State Water System	255,200	352,526	335,200	350,384	360,000	356,686	40%
Outlying States Power Bills (Earmarked)	50,000	49,996	50,000	49,949	0	0	-100%
Sewer Pumps Purchase (Earmarked)	75,000	74,767	20,000	0	0	0	-100%
<b>OMIP &amp; Oth Grt Match</b>	<b>126,053</b>	<b>101,921</b>	<b>149,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	-100%
Bridge & Road Maintenance	150,000	148,649	150,000	148,046	0	0	-100%
CIP Office Operations	184,000	182,120	160,000	146,261	160,000	158,590	-14%
Asphalt Plant Operations	113,000	108,048	0	(40)	0	0	-100%
Potholes Repair	0	0	150,000	137,667	68,000	32,485	
Rural Sanitation Project	191,718	167,840	163,000	158,036	165,000	163,713	-15%
<b>Total</b>	<b>4,174,771</b>	<b>4,122,660</b>	<b>4,630,546</b>	<b>4,277,567</b>	<b>4,451,000</b>	<b>4,406,493</b>	6%

Source: Financial Reports

**E. Staffing**

18. There has been some debate about “flattening” the organization structure by removing intermediate levels. These are not clearly identified in the summary of staffing numbers provided in Table 2.

**Table 2 Approved Staffing by Function (Including Vacancies)**

	Management & Supervisors	Support/Admin	Technical and Operations	Total	Staff Budget \$000
Facilities and Maintenance	2		27	29	304,872
Road and Equipment (Total)	1		21	22	211,042
Equipment Branch			0		
Road and Ground Maintenance	13	1	44	58	480,268
Bridge and Road Maintenance			0		
Solid Waste Management <sup>3</sup>	1		0		
Design and Engineering	1		0	1	
Utilities (Total)	1	1	12	14	142,821
Water Connections (Outlying)	1		38 (rural)	39	
Water Treatment Plant	1		17	18	176,664

<sup>3</sup> Included in road and ground maintenance

Sewer Connection Unit	1		0	1	37,222
Wastewater Treatment Plant	1		0	1	144,405
Rural Sanitation Project	1		7	8	
Outlying States Water Plants	1		38	39	
Administration	1	13	0	14	} 240,258
Energy	1		1	1	
Unexploded Ordinance/Safety			2	2	
<i>Total</i>	<i>27</i>	<i>15</i>	<i>207</i>	<i>249</i>	

Source: BPW

## F. Division of Facilities and Maintenance

19. With a staffing establishment of 29, the Division exists to provide maintenance services to Government agencies in terms of (i) carpentry; (ii) electrical equipment and air conditioning repairs; and (iii) plumbing services. The Division processed only 58 Works Orders in the quarter ended September 2007. Of these, 27% were for the Department of Education; 10% for the Bureau of Arts and Culture, and the remainder spread over 17 government agencies.

20. The Division will provide quotations for all work to be undertaken. The client Department will meet material costs, but is not charged for labor. This workload equates to only 2 jobs per person per quarter. It is suggested that this is unsustainable. A number of these jobs are for very simple repairs only, or routine maintenance of air conditioning units.

21. The services provided are also available from the private sector. If all maintenance functions are contracted to the private sector, then costs to user Departments will increase marginally, but total costs to the Government of Palau will fall by the level of salaries and overhead costs currently required to support the Division.

22. As presently constituted, it is most unlikely that the Division would be attractive to private sector investors under a program of privatization.

### 23. It is recommended that:

- (i) The Facilities and Maintenance work unit be disbanded, and work be opened to private sector providers;
- (ii) Fixed term contracts be offered on a "preferred supplier" basis, with separate contracts for each function (carpentry; plumbing etc.);
- (iii) Private sector suppliers who wish to do be permitted to bid for more than one functional contract;
- (iv) Preference be given to those contractors who are prepared to offer employment to staff currently working in these functions;
- (v) The current workshop facilities be available for lease to the private sector;
- (vi) In the event that not all staff can be absorbed by transferring staff to the private sector, then some suitable form of severance be negotiated.

## G. Division of Road and Equipment

24. The Division employs 58 staff. It is responsible for the major national road network, with a total length of 75 – 80 miles. The Compact Road represents about 53

miles of this total. Maintenance of other roads is the responsibility of individual States, using funds allocated by the Government of Palau (GOP). No Road Asset Management System (RAMS) has been mentioned in discussions. Funding for road maintenance generally appears inadequate, resulting in significant rehabilitation costs and, in the meantime, hidden economic costs to road users because of wear and tear on vehicles and slow travelling times that must be attributed to poor quality of roads.

25. The Equipment Branch completed 30 Job Orders in the quarter to September 2007, 56% of which were for BPW. This suggests considerable underemployment of staff.

26. Capital projects for roads are generally funded by international donors, with construction work completed by international contractors. The BPW Annual Plan indicates that the 2008 budget required some \$20,000 for equipment repairs and \$1.5 million for equipment for the Koror – Airai Road. In addition, The CIP has a considerable level of funding requirements for new road construction, as indicated in Table 3:

**Table 3 Projected Road Investments**

Location	\$
Aimelik Road	200,000
Airai Road	750,000
Angaur Road	45,000
Compact Road to Nekkeng	2,500,000
Koksai Road	15,000,000
M-Dock Road	300,000
Melekeok State Road	700,000
Ngaraard Road and Waterline	1,400,000
Ngaraard Road	600,000
Ngaarchelong	175,000
Ngermid	200,000
<i>Total</i>	<i>21,870,000</i>

Source: CIP

27. It is not possible to tell from the justifications provided for the above projects how many are “must have” and how many are “nice to have”. A formal overall roads management program, based on road asset maintenance surveys, but also incorporating capital and maintenance, will be of considerable value in developing a time phased road management plan.

28. Two “rules of thumb” can be considered for road maintenance<sup>4</sup>: (i) roads deteriorate slowly for the first two thirds of their life, but then much more rapidly if preventive maintenance is not put in place; and (ii) 2% to 2.5% of road assets is required annually for routine and periodic maintenance. Surveys by international donors have indicated that there are huge increases in costs for reconstruction of roads, which will be in the region of \$45,00 - \$300,000 per kilometre, compared to \$8,000 - \$40,000 for resurfacing and only \$300 - \$5,000 for routine maintenance such as pavement repairs, road drainage etc.

29. Even downscaling the percentage of funds to be allocated to maintenance, it will be seen that the level of maintenance funds required to support proposed developments is substantial. The implications of “whole of life” road planning are therefore significant. If additional funds are allocated for shorter term preventive maintenance then long term

<sup>4</sup> Various World Bank and ADB reports

costs of roads, including extensive rehabilitation or reconstruction, are likely to be significantly reduced. The economic justification for many of the proposed developments is somewhat superficial, and no comparative ranking criteria exist to determine priorities based on benefits to the population. A full inventory of prioritized road maintenance requirements will assist in determining priorities for available expenditure. This overall inventory of requirements can be used to make decisions on the total level of expenditure to be allocated to road maintenance and rehabilitation from the vehicle licensing system.

30. Given the small population size, it is likely that there will be economies of scale from combining responsibility for maintenance of both the Compact Road and State roads. A number of countries have developed contract maintenance systems with local communities, especially for low investment maintenance such as keeping verges clear of grass, and drainage clearance. This provides employment for communities; helps with the provision of adequate maintenance standards, and provides some small scale income.

31. The role of the private sector in road services tends to fall into two areas: (i) maintenance, rehabilitation and construction; and (ii) public private partnerships in toll roads and expressways, where alternative but slower road networks are also available. Public private partnerships, with sharing in the costs and revenue from road developments, are not a suitable option for Palau because of the lack of revenue raising opportunities from road users. However, private sector involvement in road maintenance is a possibility. Discussions with private sector representatives also indicate that a number of contractors are interested in undertaking work of this nature.

32. In the absence of readily accessible reports on unit costs it is difficult to project benefits from contracting major maintenance. An ad hoc approach, letting some short term maintenance contracts, is not likely to provide the best long term results because there is no long term incentive to the private sector to invest in plant, equipment and training that may be necessary to present a long term competitive bid.

33. One other risk to be considered from private sector involvement is that a private sector monopoly may emerge, based around, for instance, a dominant position in the supply of asphalt. This risk needs to be guarded against by developing a separate contract for materials supplies, to be accessible to all bidders.

**34. The following strategy is recommended:**

- (i) Remove the separation of responsibility for Compact and State roads. The country is too small for such a demarcation;
- (ii) Develop prioritized maintenance specifications for a pilot section of road(s), with an emphasis on the standards to be achieved (smoothness; lack of potholes, level of drainage problems that are considered acceptable etc);
- (iii) Introduce community based contracts for simple maintenance requirements (drainage clearance and grass trimming);
- (iv) Consider long term requirements (3 years) for specified sections of road, and develop output based contracts;
- (v) Maintain a central contract management office, with expertise in road maintenance, to be responsible for ongoing contract management and inspections;
- (vi) Obtain cost estimates from BPW, based on outputs (quality of maintenance); labor and materials costs;

- (vii) Obtain comparative cost quotations from the private sector, and enter into contract if there are financial benefits;
- (viii) Award contracts accordingly, based on both cost and expertise.

## H. Water and Sewer Connection Branch

35. No breakdown of costs or future financial projections for water and sewer operations was available within BPW. However, as indicated in the introductory section of this paper, water and sewer services represents a significant proportion (51%) of the total BPW budget, and is one of the areas where financial allocations from 2005 to 2007 have increased, in particular for the water treatment plant (66%).

36. Based on the work volumes in the Quarterly Report<sup>5</sup>, productivity appears very low.

37. The annual plan also indicates the budget shortfall for the financial year ended 2008 is \$400,000, and an increase in the cost of chemicals for water treatment to increase to \$200,000<sup>6</sup>.

38. Projected demand within 10 years is for 6 – 7 million gallons of water per day. Consideration is therefore being given to an investment of \$8 - \$10 million to use the Tabecheding River as a source of water.

39. The annual plan also refers to numerous investment requirements (Table 4). Not all of these have been costed, and there is no indication of the timing.

**Table 4 Future Investment Requirements**

	\$
Replace 4" Supply Pipes	<i>n/a</i>
Replace 6" Pipes Ochelochel to Siokumins	<i>n/a</i>
Install 10" pipe Ngerikiil Bridge – Ngerikiil Interesection	<i>n/a</i>
Instal 2" supply Ngerumetek Residential Area	<i>n/a</i>
Instal 2" supply Ikoranges housing area	<i>n/a</i>
Airai 50 supply lines residential housing	<i>n/a</i>
Koror 36 supply lines residential housing	<i>n/a</i>
Replace old connections	<i>n/a</i>
Vehicles	100,000
Repair Cracked manholes	200,000
Reduce storm water inflows	200,000
Connection to gravity main Tibedul	200,000
Connection to gravity main Ngerias	200,000
Connection to gravity main Diberdii	185,000
Connection to gravity main Sakurakai	235,000
Connection to gravity main Ngesaol	450,000
House Sewer Connection Equipment	70,250
Electric Meters Koror	65,000
Electric Meters, Airai	65,000
Electric Meters Outlying States	120,000
Electric Pump	200,000
Total	2,290,250
<i>To expedite above</i>	<i>4,000,000</i>

Source: BPW Annual Plan

<sup>5</sup> Total new connections for quarter: 12; Pipe repairs 25; Pipe Upgrade: 1; - and a detailed list of parts used; July – “lack of fuel – didn’t do much work”; July Sewer Connections 2 houses Mejuns; 2 houses Ngermid and Unplugged sewer line at T dock; August 2 sewer connections ad only 6 requests

<sup>6</sup> Baseline figure not quoted.

40. In addition, the annual plan identifies a number of other investment projects for outlying States water supplies, but without financial projections. The list of requirements is as follows:

- 50,000 gallon Tank Ollei, Ngerchelongs State;
- 50,000 gallon Tank Elas;
- 30,000 gallon tank Ollei;
- Planting Program;
- New Water Pumps (7);
- Improved Filtration;
- Improve Water Systems Elsewhere;
- Repair Leaks.

41. Many countries have entered into forms of privatization and public private partnership for water and sewer services, ranging from corporatization to full long term concessions. However, prerequisites for such action include: (i) an effective regulatory framework, to prevent abuse of monopoly power by private sector operators; (ii) clear policies on tariffs and affordability, or subsidy entitlements for low income groups; and (iii) a sound understanding of operational issues and their implications.

42. As an example, a private sector operator would want to be assured of adequate income streams if it is required to, or needs to, contribute to the overall cost of \$200,000 to replace cracked manhole covers, or \$450,000 on a gravity main connection for Ngasaol, or \$10 million on a water supply connection from the Tabecheding River.

43. There has been a number of failures of concessions in water supplies, for instance in the USA, where it was not clear to the private sector investors the level of system losses from leaking pipes. This affected the viability of the concession, and has led to the private sector walking away from the concession, rather than facing ongoing financial losses.

44. Commercialization and corporatization of the water supply and sewer services can be considered. This would enable the services to operate in a similar structure to telecommunication and electricity supplies. A prerequisite for such a move is a decision on the level of cost recovery from tariffs and associated subsidies, since this will have a significant bearing on the financial performance targets for a corporatized institution.

45. However, simply changing to a corporatized status is probably not enough to achieve a significant improvement in performance. If the same people continue in their present positions, and simply report to a Board of Directors which is accountable to a Government Ministry, then there is a danger that change will, at best, be slow. What is required is some additional sector expertise, to be brought in on a short term contract basis, with responsibility for:

- (i) completing a comprehensive audit of the problems in water and sewer services and the opportunities for improvements;
- (ii) development of a time phased and prioritized investment program;
- (iii) the development of a three year financial plan for the sector; and

(iv) production of an action plan to promote the sector to private sector joint venture partners.

46. Much work remains to be done if any form of public private partnership or concession is to be offered to the private sector to undertake water and sewer services on behalf of the government. In the short term there is a case for closer management scrutiny of services; improved productivity; a water loss reduction program; and development of a medium term prioritized capital investment program.

47. In the medium term corporatization can establish the institution so that it becomes a more attractive investment proposition to the private sector. In the longer term there is a good case for offering a concession to undertake water supply and sewer services.

**48. It is recommended that:**

(i) A Terms of Reference be drawn up for to enable a contract manager to be engaged for a two year period to complete a full audit of operations, investment requirements and financial performance of the sector, with a view to developing a future public private partnership that will enable the Government to share with the private sector the level of funding for future capital investments;

(ii) A policy review be initiated to determine what level of cost recovery can reasonably be expected from future operations, and how subsidies, if any, should be targeted;

(iii) A loss reduction program be initiated to address the level of losses due to deteriorating infrastructure.

49. In the medium term, corporatization can be followed up, as a precursor to considering some form of public private partnership or joint venture with an experienced operator.

## **I. Solid Waste Management**

50. Future requirements for Solid Waste Management have been the subject of an extensive study funded by JICA. The report was still under revision at the time of the consultant's visit, and was not therefore available.

51. It is expected that it will recommend a single institution be responsible for solid waste management. A new landfill site is likely to be proposed, to be located on Babeldbaob, to be completed by 2012, which is the time the existing site at M-Dock reaches full capacity. In the early drafts of the JICA proposal it was suggested that if individual States wished, they may also construct their own landfill sites. The initial draft also favored ongoing involvement of the private sector in refuse collection.

52. It is expected that the report will recommend environmental controls and safeguards to be met by future operators, whether these be the private sector or BPW and State Governments. Compliance with these requirements will impact the cost structure.

53. A major policy decision is whether solid waste management is to be financially self sustaining, or subsidized, and associated tariff structures at both the national and State levels.

54. Solid waste management represents an excellent opportunity for a public private partnership (with Government sharing in funding the new facilities and retaining an interest in future operations) or a long term Build Own Operate (BOO) operation,

whereby the private sector develops and operates the new solid waste management facilities on a long term basis, and retains all associated revenues. Either of these options has the advantage of bringing in international technical expertise in good practice solid waste management principles.

55. Whether the investment will be attractive to potential investors depends on the proposed tariff policies, or the level of subsidies to be made available from the national, and perhaps State, governments.

56. A BOO operation presents a significant opportunity to provide Palau with an updated solid waste management facility without requiring a capital investment on the part of Government of Palau, or, alternatively, an opportunity for a reduced capital investment and sharing in project risks with private sector investors. If it is to be successfully implemented, rather than being funded and operated entirely within national and State government resources, it will require: (i) a regulatory framework setting out rights and obligations of all parties; (ii) clear delineation of the responsibilities of national and State governments, and the contracting partner; (iii) clear definition of tariffs applicable for all facets of service, and the circumstances of tariff reviews, based on projected operating costs; (iv) a clear understanding of the assumptions underlying financial projections, and who carries the risk that these assumptions may be inaccurate; (v) decisions on any subsidy entitlements, and the basis on which these are reviewed over the life of the landfill; (vi) policy decisions such as the level of local private ownership under either a BOO or Joint Venture, and the level of experience required from bidders; (vii) consideration of other issues such as recycling, and their associated financial implications; and (viii) environmental assurances and obligations. All this is likely to require considerable preparatory work before implementing competitive bidding procedures.

57. **It is recommended that** a policy decision on the future requirements be made at an early date, to enable detailed development to proceed.

## **J. Design and Engineering**

58. Design and Engineering is essentially a responsibility of the CIP office. It provides an important central function that brings together the various sectors of BPW services.

59. Although it is possible for this service to be carried out on contract, the consultant does not believe this would bring significant benefits. No changes are therefore recommended.

## **K. Rural Sanitation**

60. Staffed with 8 personnel, the Rural Sanitation group provides septic tanks and some composting toilets to rural households for no cost to householders. Workloads are variable, and reflect the release of funds from the Government.

61. An overall impression of the services is that they are particularly well managed and organized, with old but immaculately maintained equipment, that is underutilized because of lack of funds. In common with other parts of BPW, productivity is therefore below the optimum.

62. There are four strategic issues facing rural sanitation services: (i) is it necessary for the services to be provided by Government, or could the private sector undertake them more efficiently? (ii) is there a case for commercializing the operations, to

introduce a full or partial cost recovery? (iii) to what extent does erratic release of government funds impede productivity? (iv) will the impact of recent road developments increase demand for services as people move from Koror to other locations now accessible because of road improvements and the development of the Capitol?

63. The manager of the Rural Sanitation services does not favour design and build services from the private sector because of the lack of any specifications. These are required before any move to greater involvement of the private sector can be considered.

64. Once the required standards are in place there seems to be no reason why this work should not be opened up to the private sector. If there is only limited interest in providing such services, then some additional controls to avoid a private sector monopoly may be necessary – and should be planned prior to opening up the sector to increased private sector involvement.

65. The question of cost recovery is a policy issue. The introduction of a cost recovery mechanism is not a prerequisite for private sector involvement in the sector. If it is decided that septic tanks and/or composting toilets should be provided free of charge then it will be possible to introduce contestable bidding for work based on the level of payment by government to the contractor.

66. Erratic release of funds from Government almost certainly impedes productivity, and results in enforced idleness, because of inability to procure raw materials. This must be addressed if the Rural Sanitation group is to compete successfully with the private sector, who will find additional productive tasks for their employees. Rural Sanitation employees are effectively limited to housekeeping duties at such times.

67. As is the case with other sectors, the clarification of government policies and the introduction of standard specifications (a surrogate for regulation) is a prerequisite for reform. The attractiveness of the work group to private sector buyers is likely to be limited because until now there has been no financial profit motive driving operations; productivity has been reduced by cash flow difficulties; and the unit has few assets apart from technical know-how (valuable) and some old but well maintained machinery. The overall extent of future demand is also unclear at present.

68. **It is recommended that:**

(i) The Manager, Rural Sanitation Services be requested to produce a set of standards for septic tank and composting toilet design and installation, suitable for use within Palau.

(ii) He also be requested to provide a breakeven analysis for these services, operating on the basis of a steady work stream, so that informed decisions can be made on whether the services should be provided on a full cost recovery basis, or with some level of government subsidy (which could be 100%).

(iii) An assessment be made of projected demand for services over the next 3 – 5 years.

(iv) Consideration be given to full privatization of Rural Sanitation services, possibly through a Management Buyout, once standards and policies have been determined, and future workloads assessed. Possibly this is a case for a management buyout, given that the necessary expertise exists within the work group to provide the necessary services.

(v) After an initial period during which the new owners are given preference, thus enabling them to obtain a return on their investment, the work is opened up to private sector competition, subject to compliance with the required standards.

**L. Specialist Groups**

69. There are three specialist groups – (i) Administration; (ii) Energy; and (iii) Unexploded Ordinances.

70. The requirement for administration, at 14 specialist staff (5.6% of total staff), appears high.

71. Unexploded Ordinance and safety (2 staff) could be outsourced to existing staff, working on a contract. This would enable them to pursue other additional activities, in addition to meeting contractual requirements. However, because of the small number of staff and the impact on costs this approach should only be pursued if there is interest from the position holders.