

**MIXED-CAPITAL PUBLIC-PRIVATE PARTNERSHIPS:
A PRACTICAL A CASE FOR SIMPLIFIED INFRASTRUCTURE
SYSTEMS AND REDUCING THE ECONOMIC AND
ENVIRONMENTAL VULNERABILITIES IN PACIFIC ISLAND
STATES**

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Sustainable Project Management (SPM)

BACKGROUND

SUSTAINABLE PROJECT MANAGEMENT (SPM) is a not-for-profit international business development organisation, which was established in early 1995 to implement some of the outcomes of the 1992 Earth Summit. Our objective is to create locally owned public-private partnerships that operate commercially viable businesses to provide improved waste, water and energy services to developing communities. SPM uses a sustainable development tool known as the Mixed-Capital Public Private Partnership (MC-PPP) to create and sustain these businesses. We have worked on projects in Latin America, Africa, and Eastern Europe and currently are engaged in a municipal solid waste project in the Philippines and two projects in the Pacific region.

SPM has been working in the Pacific region since January 2000 with the support of New Zealand's Official Development Assistance programme and in collaboration with the South Pacific Regional Environment Programme (SPREP) and the South Pacific Geoscience Commission (SOPAC). Currently, an integrated municipal solid waste facility is being developed in cooperation with the Government of Samoa as the public partner, and both local and New Zealand based private sector interests. SPM is also directing the development of a waste-to-energy business using an oxidation pond sewage/wastewater treatment system coupled with a fish-farm operation. This system is being designed for Pohnpei, the capital of the Federated States of Micronesia with the Government as the main public partner, and a number of local and international private sector companies providing the appropriate technology.

In brief, this model can be successful in developing sustainable solutions to infrastructure problems that will also result in economic and environmental benefits

for developing communities. It seeks from the outset to engage the public sector – both official and civil society – and the private sector in the overall design and implementation of a project. There is an important element of shared risk and shared reward that is a strong linkage between the two parties. When this is connected with both sides committing investment and equity to the partnership, the resulting joint venture creates a sustainable solution that works. The business is established using innovative financing mechanisms (hence the reference to ‘mixed-capital’) that obviate the need for the public sector to take on more national debt to finance the solution to an infrastructure problem. The business is structured to be commercially viable so it is profitable, provides local employment, and the service it delivers supports greater efficiencies in the local economy overall.

The waste, water or energy facility is constructed using low cost, innovative, environmentally friendly and appropriate technology. The use of eco-friendly technologies such as waste-to-energy systems, renewable instead of non-renewable energy sources and end-of-process capture methods for any ozone-depleting gases or other toxic residues, ensures that the local environment is not damaged by the new facility. In fact it can contribute to an improvement in both the proximate and down-stream environments such as in-shore marine and coastal regions, fragile coral atoll eco-systems and estuarine water ways by mitigating pollution from solid wastes, waste-water and other liquid effluent like waste oil, and fossil fuel emissions.

INTRODUCTION

Conventional western-based “advanced” wastewater treatment systems just don’t work, or work for very long, in the equatorial Pacific!

Almost all “advanced” Pacific Island wastewater treatment systems fail to meet water quality effluent design or local water quality standards. High energy costs, a corrosive tropical environment, high equipment maintenance and replacement costs, and limited training of wastewater treatment plant operators have collectively contributed to the failure of these systems to produce the public health, natural resource, and water quality benefits originally intended. Poor outfall siting in some locations (e.g., Tuanmokot Channel on Pohnpei and nearshore waters off Ebeye in the Kwajalein Atoll) has resulted in more problems than solutions because of poor tidal flushing and water current circulation.

I will discuss why a wastewater collection, treatment, and disposal system is critical to developing island economies. I will also present three project case studies---in the Philippines, Samoa, and Pohnpei. If time allows I will describe the Kosrae wastewater oxidation pond system at Tofol, which is an example of an environmentally sustainable wastewater technology that is applicable to most small-island developing states. Finally I would like to share with you some wastewater management guidelines based on the collective years of experience of SPM's staff in researching and analyzing the marine and coastal environmental impacts of wastewater facility siting, construction and operation.

A wastewater collection, treatment and disposal system, together with water and power systems comprise the basic infrastructure that all island nations must have to foster economic development and diversification, protect public health and preserve the environment and natural resource base upon which most island communities are directly or indirectly dependent. In the absence of any one of these components, economic development cannot take place, public health will be compromised, and marine and coastal resources may be needlessly lost or jeopardized.

Prior to the influences of Western development, traditional ways of village life, with widely scattered and generally small population centers, could readily manage wastewater from human and domesticated animal sources with little if any discernible impact on public health or the natural environment. After all human and animal waste products are basically nutrient resources in the wrong place or wrong concentration. However, with high population growth rates and urbanization throughout the region, the carrying capacity of the natural environment to handle wastewater can be diminished or lost.

Commercial jet service and surface shipping now link most small island nations, affording easy travel and business opportunities. Island nations are also visited by a host of fishing fleets and tourists from around the world, often from countries where sanitation is not up to acceptable public health standards. This results in increased contact with the outside world and greatly increases the risk of exposure to certain types of infectious and waterborne diseases. Many of you probably remember the devastating cholera outbreak in the early 1980s in Tarawa Atoll, and its rapid spread to Chuuk and Pohnpei and other pacific islands. Not only did this disease claim hundreds of lives, but also it effectively destroyed the fledgling tourist industry in the affected areas for several years. In Chuuk, between 1982 and 1984, there were 2,300 cases of cholera and 17 deaths. In 1998, 14% of Chuuk's population

contracted waterborne disease and were admitted to local hospitals and dispensaries. The 2001 cholera outbreak in Pohnpei claimed 20 lives and resulted in over 3,000 hospital admissions. Treatment for such diseases and infections costs the governments and the individuals affected substantial dollars, not counting time lost from work, school absences, and so on. Sadly, most of these disease outbreaks and their associated direct and indirect costs to society were largely avoidable and preventable.

The ability to adequately collect and treat sewage and wastewater generated from any community requires access to a confident power supply. Sadly many of the island states have antiquated power supply systems that depend upon imported fuel to operate. System failures that last in excess of a few days can have disastrous consequences. Conventional wastewater collection and treatment systems also require a reliable power supply and must be consider together to avoid future public health crises.

In the Pacific context such an approach can directly address many of the economic and environmental vulnerabilities with which the small island states are challenged. As with other small island developing states around the world, those in the Pacific region must address these vulnerabilities across a range of sectors in order to provide sustainable livelihoods. These vulnerabilities are many but include fragile and very diverse ecological systems; a range of environments in a small area from volcanic plateaus to coral reefs; small communities which can only therefore provide a limited human resource base and the associated problems with emigration; remote locations and a dependence on infrequent shipping and air services for goods and services; limited Internet and Communication technology access; and balancing the maintenance of traditional cultures and customs with sustainable development using modern, mostly Western practices.

POINT AND NON-POINT POLLUTION SOURCES

There are two major broad categories of marine pollution in the Pacific: point sources and non-point sources.

Point sources of pollution include treated or untreated wastewater discharges emanating from a pipe or ditch. Because of the prevailing lack of industrial development in the small island developing states, most point sources of marine and estuarine pollution are from domestic a source, that is human waste products, grey

water and, occasionally the effluent from animal production facilities, such as piggeries and poultry operations.

Non-point pollution sources involve diffuse discharges without a direct physical means of conveyance. These include soil, sediment, and silt runoff resulting from rain or wind action at construction sites, cleared lands, agricultural areas, roads; basically activities that disturb the soil and any pollutants or contaminants attached to or carried by the soil. This category also includes activities such as dredging, causeway construction, and other actions that disturb bottom substrates and produce suspended silt and sediment. Rainfall runoff and associated coastal sedimentation around high volcanic islands represent the greatest threat to nearshore coral reefs. Public health considerations aside, the impact of treated or untreated sewage discharges on Pacific Island coastal and marine ecosystems is relatively inconsequential and localized when compared to the impacts associated with soil runoff and sediment deposition.

Kosrae Wastewater Oxidation Ponds at Tofol

The Tofol wastewater oxidation pond treatment system was constructed by the U.S. Navy Civic Action Team in the mid-1970's and comprises three cells or ponds constructed in series with each pond occupying about 0.2 acres in surface area. Wastewater flow in 1978, was estimated at roughly 15,000 gallons per day with a BOD-loading of 32 pounds BOD/day.¹ At that time the system served the Civic Action Team base, the high school, hospital, and several government buildings. The cells were largely overgrown with non-aquatic weeds on the banks and across much of the bottom. There was no sewage odor (hydrogen sulfide) detected in surveys conducted in 1978 nor during the 1995 survey conducted under an Asian Development Bank technical assistance contract by the Stanley International Group Inc., of Canada.

When Mr. Brewer conducted water sample collection surveys in 1978 he noted that he had to drive a 4-wheel drive vehicle through a tall stand of Phragmites reeds to get to the ponds. This action attracted the interest of a number of students that attended the adjacent high school, which rests about 100 meters downwind of the oxidation ponds. About a dozen students followed the vehicle through the reeds and

¹ Bill Brewer, 1978

were surprised to see what looked to them like three small manmade ponds. When they were told what they were used for, they were surprised. They all agreed that they had never detected any odor from the facility, despite the school being directly downwind with respect to the prevailing trade winds. Both the students and Mr. Brewer were amazed to see dozens of mature milkfish and mullet feeding and cruising in pond 3---a good bio-indicator of excellent water quality.

Effluent from the facility is discharged via a low elevation outlet pipe from the final cell, to estuarine reaches of the Tofol River which then flows a short distance into a broad mangrove swamp that fringes Lelu Harbor. Most sewage generated on Kosrae today is discharged from toilets to septic tanks with a "soakaway" pit or tile field for the supernatant liquid. On request, the Kosrae Department of Public Works pump-out truck will collect and haul the solids to the Tofol wastewater ponds for additional treatment.

In a report prepared by Barrett & Associates in about 1980, the system was described as follows:

"The Tofol oxidation ponds are too shallow to operate at optimum efficiency. With less than two feet of water, the treatment system operates as an inefficient low-rate aerobic pond. Its shallow depth has resulted in excessive weed growth, loss of pond volume and surface area from encroachment of vegetation, scum accumulation, potential for short-circuiting, inefficient anaerobic decomposition, and potential for re-suspension of settled solids. Each of these factors contributes to the deterioration of effluent quality."

While some of this statement is true in part, I would have to say that despite the design limitations and absence of any discernible maintenance, the system none-the-less produced an effluent that surpassed the quality of four "pristine" streams on the island with respect to fecal and total coliform, nitrate, phosphate and dissolved oxygen.

Is the Kosrae oxidation pond system one that will "turn on" design engineers or public works officers that love big pipes, pumps, and impellers? No - It has no moving parts, relying instead on a gravity flow collection system and gravity flow between the ponds. Is it a place that you would want to show off to visiting dignitaries? Probably not. Will the engineering company who might design such a system receive a significant design fee? No. Will the construction contractor receive substantial fees for facility construction? No. Does it work? Yes. It produces an effluent quality an

order of magnitude greater in most test parameters than the multi-million dollar Malakal secondary treatment plant in Palau.

Perhaps the most telling example of the efficacy of wastewater oxidation treatment systems is found in a study conducted in 1997 by Mike Dworsky, ASPA, under the Department of Interior's Operation and Maintenance Improvement Plan program. After more than 22 years of operation, the recommended Short Term Action for Improvements for the Tofol oxidation pond complex was described as follows:

“ We recommend that the grass and vegetation around the existing sewage lagoons be cut. In addition, we recommend the removal of aquatic plants that are blocking the surface of cells one and two. After the cell berms and surfaces have been cleaned we recommend that the sludge depth of each cell be determined. It appeared that cell one may have an accumulation of solids. If this is true the solids need to be removed to a drying area. It is also recommended that a simple flow measuring device be installed to provide flow information”

When reflecting on the cases of waterborne disease that has frequently broken out in the island states it is hard to not wonder if waterborne disease could have been reduced and coastal water quality substantially improved IF, instead of the large, over-designed municipal wastewater collection, treatment, and disposal system, money would have been better spent providing each of the larger villages with a gravity flow collection system and a small multi-cell oxidation pond system instead. It would seem that the topography of most islands and the distribution of the villages would lend itself to this type of low technology but sustainable wastewater collection and treatment system.

WASTEWATER MANAGEMENT GUIDELINES:

1. Emphasis should be placed on outfall siting to take advantage of areas with greater flushing and containing less sensitive ecosystems. Natural dilution and transport of sewage plumes by water currents and tides can lead to outfall design and placement that will reduce wastewater treatment facility construction costs and minimize impacts on the receiving water.
2. Focus on reducing treatment levels to simple wastewater oxidation ponds that require an order of magnitude less capital investment, maintenance, and energy costs than conventional wastewater treatment systems. If budgets permit, consider plumbing an anaerobic digester and methane recovery system into the treatment

system to reduce use of imported kerosene and natural gas, and reduce the cutting of wood from forested areas.

3. Secondary sewage treatment, although removing most solids, results in high levels of dissolved nutrients in a form more usable to marine plants and may stimulate “blooms” and other undesirable effects in enclosed bays and lagoons.

4. Disinfection, which relies heavily on chlorine, can result in adverse effects on benthic organisms near the outfall discharge.

5. Mangrove swamp forests and coastal fresh and saltwater marshes may offer suitable sites for disposal and polishing of treated sewage. Such sites take advantage of the role of mangroves and marshes as nature’s natural oxidation and reduction zones.

6. Development of water quality standards for receiving waters can be an important control in establishing appropriate treatment levels and monitoring programs. Such standards, based on the beneficial uses desired, can result in a realistic classification of coastal waters and appropriate levels of water quality for such classes. What this means is that a discharge into, for example, a dredged commercial harbor probably does not need the same level of treatment as a discharge into pristine coastal waters of high subsistence fishery or recreational value.

7. On atolls and other water-limited areas, the use of saltwater systems to flush toilets and carry municipal wastewater may be an important option where conservation of potable water is necessary (Majuro uses a seawater flushing system). I see no biological reason why a brackish or saltwater oxidation pond system wouldn’t work as efficiently as a freshwater system.

8. Where oceanographic and substrate conditions permit, an outfall pipeline deployed on concrete blocks above the substrate can minimize construction impacts upon benthic communities.

9. Evaluate alternative treatment and disposal systems for impacts on receiving waters versus cost effectiveness and long-term sustainability. Based on public health, water quality, and environmental impact considerations, a discharge of raw effluent via a deep ocean outfall may be as environmentally benign as a primary or secondary-treated effluent discharged into shallow ocean or lagoon waters.

10. Island governments must legislatively develop the power of eminent domain to ensure that wastewater treatment plant and outfall siting decisions will be made on the basis of environmental suitability and sustainability, not on the basis of land tenure.

STRATEGIES FOR CHANGE

The Pacific Island Governments have as priorities, in their national planning strategies, a plan for addressing some of these economic and environmental vulnerabilities by finding solutions to waste, wastewater and energy problems. It is well recognized that problems in these sectors resulting from improper management, treatment, disposal or impact on the economies and the fragile tropical environments. Cholera is a serious public health issue which blights some of the Pacific islands because of inadequate waste water management; gastro-enteric diseases are prevalent where there is improper solid waste disposal; and pollution from land-based effluent into coastal and lagoon systems is affecting the local communities' use of the food and other natural resources from these areas, and beginning in some islands to have a negative impact on tourism.

TECHNICAL SOLUTIONS

In disposing of treated or untreated wastewater in the tropics, we are basically involved in the process of discharging naturally occurring organic and inorganic nutrients into nutrient -deficient oceans and lagoons. Given the absence of significant industrial development activity, hazardous or toxic chemicals are rarely a concern. Given sound planning, technically sound site selection surveys, particularly adequate water current surveys, ocean and lagoon waters surrounding most developing Pacific Island nations can assimilate significant quantities of these nutrients with little or no detectable adverse environmental or public health impact. While the impacts of typhoons and storm waves can be devastating to coral reefs and other tropical marine habitats, it is rare to see anything other than very small, localized disturbances in reef habitats, biota, or water quality from most treated or untreated wastewater discharges throughout most Pacific Island nations.

SPM is presently working with Marcelino Actouka, General Manager, Pohnpei Utilities Corporation in the development of a gravity-flow wastewater oxidation pond collection and treatment system that will serve the FSM Capitol and College of Micronesia campus complex at Palikir, Pohnpei. We're excited about the possibilities

of this system and its potential as a sustainable model for other states and regions to emulate.

MC-PPP'S - TOOLS FOR DEVELOPMENT

The development of a model that overcomes or mitigates some of difficulties enumerated above and in which the public sector can retain a tangible economic stake appears to bring a number of critical advantages all of which serve to strengthen the role of the Municipality and simultaneously transfer to its personnel the necessary experience in running profitable public services. Hence the concept of the mixed capital business to provide such services in the fields of water, waste and energy – the Mixed Capital Public Private Partnership (MC-PPP). It is on the design and implementation of such a model that SPM have been working for the last 7 years.

When compared with the traditional infrastructure contracting, the MC-PPP is perceived as providing a series of additional benefits to the public sector, including:

- ?? An alternative to sometimes controversial wholesale privatisation
- ?? A more transparent and pro-active manner of engaging the private sector
- ?? The maintenance of partial ownership and management responsibility of its own assets, through the exercise of shareholder voting rights
- ?? Enhanced managerial performance of the venture and the development of national capacities
- ?? A way to preserve the political responsibility and benefits of a public service better provided.

Water supply and sanitation, integrated management of solid and liquid waste, and energy efficiency, with their distinctive economic, social, political, health and environmental characteristics, can be the main focus of the MC-PPP approach.

MODEL ELEMENTS

There are more financial resources available for urban infrastructure projects under US \$ 50 million, than is being invested, for the following reasons:

- ?? Few municipalities have the capacity to put these projects in a "bankable document" so that lending institutions and other investors can process them through to a decision

- ?? Smaller projects usually have the same degree of political and commercial risk, and because they are small, the risk and project development costs outweigh the potential financial benefit and the project is abandoned
- ?? The absence of user fee charges means there is no cash flow for the project to pay off the capital invested and to give a return to the investor. This is the most serious obstacle to private sector investment in urban infrastructure.

An assessment of the context in which municipal infrastructure projects traditionally evolve might (inter alia) highlight the following:

- ?? a well-embedded tradition of distrust between the public and private sectors
- ?? a growing body of expensive feasibility studies collecting dust on municipal shelves
- ?? the lengthiness and costliness of project identification, evaluation, tendering and implementation processes, often financed by external multilateral institutions
- ?? growing concerns about the relative merits of the public tender or "international competitive bidding" (ICB) process for smaller infrastructure projects versus negotiated bid or similar methods. Particularly as regards the price and quality of goods and services ultimately contracted by the host government
- ?? a discernible shift in international contractor perceptions of the eco-political "risk / reward ratio" of getting involved in projects in the developing world dependent upon local currency cash flow
- ?? an excess of "white elephant" projects whose only contribution is to the national burden of debt.

The MC-PPP methodology developed over the last 7 years by SPM rests on principles that are well tried and tested in the field of project financing and structuring. What is important is the way in which these principles are applied. Success is dependent on the following some basic rules at the project identification stage and later in the project development phase.

- ?? "choose the right project";
- ?? prepare the ground thoroughly and ensure that all stakeholders know where they are going;
- ?? "share risk in order subsequently to share reward";
- ?? create a public vector to engage all partners;

- ?? Instil principles of joint "ownership" and "governance" between stakeholders to the process, by establishing a joint public – private project development vehicle (the “Joint Working Group”) to move the project forward; and,
- ?? apply contracting and joint venturing mechanisms which, whilst ensuring total flexibility, transparency, and cost-efficiency; provide the private sector with the confidence that its "up-front" investment in the process of project development will be rewarded with an equitable participation in the final business.

It is important to utilize a negotiated contract approach rather than full international public tendering approach to retaining a private sector technology / engineering contractor. This will help to ensure that at all stages the project has sufficient momentum, transparency and equity.

The final indispensable component is the presence at every stage of the project process of what may generically be called the Project Development Advisor (PDA), the role played by SPM throughout the project. This presence will provide the permanent technical and financial inputs of an independent arbiter, catalyst and coordinator essential to the momentum of the process.

The stakeholders must recognize that every situation is different and requires tailor-made, flexible mechanisms to deliver results and that time is of the essence, whilst recognizing that projects in the developing world take time.

The MC-PPP process must never be allowed to become just another dialogue with hidden agendas between public and private sectors: it is dynamic and creative, and this feeling must be transmitted to the participants. Once launched, the adrenaline can be impressive: but time is never on the side of a project in the developing world and the process may ultimately wither as a result of "project fatigue" and or changes in the national (or international) economic or political environment.

THE NEGOTIATED BID ~VS~ ICB APPROACH

Traditional public tender (international competitive bidding – ICB) is designed above all to get the lowest price for a given product or service, whilst appearing to provide the contracting public sector entity with some form of guarantee of impartiality. This is not the place to provide an in-depth analysis of how “secure” the public tender system is in practice: suffice it to say that a number of multilateral financial institutions, which have historically insisted on the ICB process for procurement, are now reviewing the suitability of this system and are increasingly prepared to contemplate a more flexible, tailor-made approach.

The world of public service infrastructure projects (*a fortiori* environment-related), is particularly complex, drawing together not only technical but also political and social

issues. The public service project can therefore be characterized as one of significant uncertainty and potential for conflict of interests. It is questionable whether – in such circumstances – the inflexible, pre-designed project approach inherent in a sealed envelope ICB can be the right one. The ICB methodology generally precludes or seriously limits communication and an exchange of views between the public and private sectors: as emphasized earlier, communication is at the heart of a successful MC-PPP and must start at the earliest possible stage of the process.

The search is on for a new partnership between the public sector and the private sector and the MC-PPP provides one avenue.

The MC-PPP process aims above all to attract private sector finance and *know-how* to what has traditionally been the riskiest stage of project development - start-up. If the private sector accepts the challenge of becoming not only the "contract manager" of the process, but also a major contributor in time and money to the project design, it must be assured of a privileged position in relation to the final contracting process. This in turn means that the public sector must be prepared *ab initio* to accept a contracting process that respects this right. This draws the process inevitably towards the negotiated contract approach.

A simple comparison of the ICB versus the Negotiated Contract approach indicates that the ICB / Public Tender usually fosters:

- ?? lowest bid but ultimately the highest price, as profits sacrificed at the bid stage need to be recovered at the design and implementation stage;
- ?? an adversarial relationship between Public Sector and Contractor(s); and,
- ?? a linear relationship between profits conceded to the Contractor and the quality of goods and services he ultimately provides whilst probably providing only very relative protection against corruption, which is increasingly accepted by all as a built-in transaction cost.

In contrast to this, the Negotiated Contract approach provides:

- ?? a simpler / faster prequalification process;
- ?? a true partnership in negotiation;
- ?? equivalent or greater transparency;
- ?? the possibility of pre-agreed return on equity (ROE) for both parties;
- ?? lower transaction costs / agreed budgets / shared project development costs;
- ?? fewer design changes and delays (which all add to costs); and,

?? shared goals regarding profits and quality of service.

Without embarking on a detailed discussion of the legal and regulatory practicalities of such an approach, suffice it to say that a number of systems exist to protect the private sector's rights, including inter alia:

?? the "Open Book" system, whereby the private sector "contract manager" guarantees full access to the project books at all times to the public sector partner in all his discussions with sub-contractors, suppliers and others.

At all times, the critical role of SPM as PDA is to manage the workability and reliability of such systems.

BENEFITS TO THE PUBLIC SECTOR

Using public-private partnership models like the MC-PPP can provide answers because these partnerships are constructed to include as wide a range of partners as is necessary to ensure the problem is addressed and translated into a successful solution. Therefore expertise can be included on both economic and environmental vulnerabilities to ensure the new business is designed to help address these problems. For example on the public sector side, there might be government officials from the Public Works, Health, Education, and Tourism Departments as well as civil society agencies already engaged in public health campaigns, Small and Medium Enterprise programmes and others.

Experience has shown that, in most cases, the host public sector rapidly sees the merits of a methodology that will:

?? re-configure its traditional relationship with the private sector

?? offer a "shared cost", faster track to project implementation

?? provide "hands on" experience for middle management in a "live" project situation

?? facilitate the transition to entrepreneurial management, with reduced risks of public sector job losses inherent in full privatisation.

The MC-PPP approach educates local political authorities and local private sector partners in the advantages of a free market approach and generating profit to ensure long term survival. Furthermore, the approach also helps to decentralize decision making thus helping local authorities to make decisions more quickly.

As a general rule, it is essential to focus on the local level. Discussions of MC-PPP at the national level tend to be general in character, and it is important to move quickly

to the local level and contact and deal with those actually affected by the problem being solved. Introduction by and approval from the central government is often necessary, but project negotiations are best handled at the local level where the real commitment is often stronger and the potential profit incentive most easily grasped.

BENEFITS TO THE PRIVATE SECTOR

Lower risks, lower costs, shorter time-frame

The MC-PPP process provides the private sector, both domestic and international, with the opportunity to develop an innovative, pro-active dialogue with the public sector on matters of common concern. It will also lower up-front project identification and selection costs and risks, through privileged access to the “project opportunity brief”. This issue alone is frequently a cause for most private sector contractors to steer clear of infrastructure projects in the developing world. Additionally the reduction of project risk (political / regulatory / economic) by virtue of the Joint Working Group mechanism coordinated by SPM (the “level playing field”), leads to:

- ?? shorter project development time;
- ?? lower transaction costs;
- ?? the chance to get in on the ground floor in the design, development and implementation of a potentially profitable business with the public sector as minority partner;
- ?? the opportunity to apply a negotiated contract (as opposed to an ICB) approach;
- ?? the opportunity to forge alliances with international contractors and investors brought to the project by SPM, the donors or others; and,
- ?? the presence of an independent arbiter in the persona of SPM, bringing complementary commercial, technical and financial experience, and serving as a bridge to the public sector.

SPM acts as a strategic broker in this process (and in the development of the MC-PPP overall) so that as an on-going part of the project’s development, wide ranging public consultation can happen to take advantage of ideas and information from across the community. Thus when the business is established, its systems are designed to meet the needs of the community to which it will provide services, and the community becomes better educated to its roles and obligations with regard to the ongoing management of waste, water and energy systems as a whole. For

example, as part of the project in Samoa, a nation-wide recycling scheme is to be implemented which will be a first for a Pacific island state. It will provide communities with a simple but effective way to mostly separate at source their waste streams thereby supporting the efficient operation of the new waste facility.

These types of partnerships can have a poverty alleviation function that can support a government's efforts to address this particular vulnerability in a number of ways. The new business builds local entrepreneurial capacity and creates local employment, which has positive flow-on effects back into the economy. The public education campaigns which provide community level education about better methods of waste management support public health initiatives aimed at reducing levels of communicable disease and other health problems associated with poverty. Once a more efficient waste collection, treatment and disposal system is operating, this leads to an improvement in the local environment which supports other community level programmes such as beautification campaigns and similar 'clean-up' activities that are also part of a holistic approach to poverty alleviation.

The framework of a small and vulnerable economy can be strengthened by these partnerships in a variety of ways. As mentioned, SPM's approach is to always include a cross section of partners in any new joint venture. Forging stronger links between government, non-government, civil society, and the local and international private sectors as part of establishing a new partnership can strengthen communication links, promote understanding of each participant's economic position and responsibilities and so contribute to a small island state's overall economic management strategy. Furthermore, these partnerships reduce the potential for traditional adversity to develop between the public sector and the private sector contractors. It is just this adversity that undermines the sustainability of any infrastructure project and contributes to project fatigue costly overruns. A foundation of the MC-PPP is a legal contract that clearly defines all the partner's roles and responsibilities (including those of SPM) as well as their commitment to a legal, accountable and transparent governance of the business.

Developing these partnerships can support other strategies for addressing human resource vulnerabilities such as capacity building and institutional strengthening in both the public and private sectors within a community. The inclusion of government officials in the on-going consultative process provides an opportunity for them to design the most appropriate ways for the public sector to be involved in the partnership, and to learn about best practice approaches to managing and operating

a commercially viable business. The inclusion of a number of different public sector agencies opens up a channel through which these organisations can discuss how best to strengthen their internal systems for involvement in the partnership, as well as their linkages with each other. This mechanism also provides a channel through which the private sector can more fully understand the responsibilities of the public sector as far as the delivery of a community utility service is concerned. It provides an opportunity for them to inform the public sector about business operating systems, commercial financial practices, and efficient management structures. It can also significantly reduce the potential for graft and corruption; aspects to infrastructure contracting that are all too often accepted costs of doing business. If this alone can be eliminated from the project it will strengthen the integrity of the local government and support from the local community.

OPPORTUNITIES

The development of an improved waste-to-energy or renewable energy facility can support efforts to reduce an island state's vulnerability to energy crises. Most of the Pacific Island states still rely on importing non-renewable energy like diesel or LPG gas for bottling. Both are very expensive and delivery can be unreliable if shipping schedules are disrupted for any reason like delays leaving port or more commonly, bad weather. Many islands states continue to operate old used diesel generation equipment that requires significant maintenance to run efficiently. Little is done to take advantage of more eco-friendly of 'green' generating technologies that could be designed in synergy with water and waste conveyance systems, sewage treatment systems and their bi-products.

Based upon our collective experience, we can imagine sustainable sewage and waste treatment systems consisting of a gravity flow collection system and a non-mechanical 3-4 cell oxidation pond system that discharges treated wastewater into a natural or manmade mangrove swamp forest. It can be feasible to plumb in a methane recovery system, and budgets permitting, culture mullet or milkfish in specially designed aquaculture ponds appurtenant to the system to harvest as a high protein food supplement for local poultry operations.

Low cost eco-friendly technology now exists which can capture the methane gas from waste processing streams to convert it for use in a variety of energy generation activities. Other technologies are also becoming cheaper and more robust such that they can be used in energy generation systems that will better withstand the harsh tropical climate conditions that have previously compromised these technologies and

required long-term and onerous maintenance schedules. Improvements in small and mini-hydro technologies have both lowered the costs of these systems and made it possible for them to be set up to harness energy for much smaller population bases than before. This technology is now therefore another viable alternative for energy generation for small island states that could be operated as a profitable public-private partnership, earning revenue through a pro-rated user fees system.

SUMMARY

To sum up, Public-Private Partnership models such as the one that SPM uses are practical approaches that small island developing states can use to mitigate a range of economic and environmental vulnerabilities. These partnerships are able to make efficient use of the wide range of skills, ideas and knowledge that exist in a community because of the links they forge between the various parts of the public sector, and the private sector. Putting them together successfully is challenging and complex, but if each step in the process is carefully implemented, and appropriate monitoring and evaluation takes place along the way to incorporate lessons learned into future projects, these partnerships can operate a business which will deliver a service to its community successfully and long-term.



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7 July 2002