INTEGRATED ENERGY PLANNING
– A TOOL FOR SUSTAINABLE DEVELOPMENT –

A CASE STUDY

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by

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EXECUTIVE SUMMARY

Generally, planning in the energy sector in the Pacific is done on an ad hoc basis and often not relevant to the overall government development goals. This is evident from the huge number of Pacific Islands Countries (PICs) that do not have an energy policy framework. In instances where energy policy frameworks are in place, their linkages to other sectoral policies may be insignificant.

Integrated Energy Planning (IEP) is seen as a tool that enhances the planning process and at the same time ensures that planning is well coordinated, taking into account other sectoral issues thus maximising the benefits of a particular energy programme and or project.

PICs are faced with several constraints that inhibit the use of integrated planning process and principles in the analysis and formulation of their national energy policy framework. The most common among these are: lack of staff and resources, untrained energy staff, lack of professional training opportunities, non-existence of a structured energy database and the non-commitment of government to energy programmes,

There had been several interventions made to try and address the development of the energy sector in PICs e.g. improved terms of petroleum fuel supply, expanding electrification to urban and widespread rural and remote island populations and development of renewable energy resources to replace the imported fossil fuels. But these had been generally piecemeal rather than part of clear and practical national energy policies and the strategic action plans to implement these policies have had limited success.

The use of IEP for policy analysis and formulation in PICs is limited to the formation of “Energy Committee” as a consultative forum. In-depth analysis and integration of sectorial policies as a basis for formulating energy policies require a thorough understanding of the principles and process of IEP.

There is a need for capacity building in the area of IEP. And this could be carried out in a variety of ways e.g. through professional training, work attachments and consultancies.
INTRODUCTION

In the context of this case study, Integrated Energy Planning (IEP) focuses on the development of the regional Pacific Islands Energy Policy and Plan (PIEPP) and national energy policy of two Pacific Island countries (PICs). IEP is both a methodology and a framework for analysing the energy system and linking policy formulation to broader national goals. In this context IEP is seen as a holistic approach and process to carry out energy planning by integrating all the sectors in an economy and linking these plans to the three pillars of sustainable development i.e. economic, social and environment.

Most investments in the energy sector in the PICs have focused on accessibility to modern energy carriers. In keeping with this bias towards modern energy, most PICs have embarked on extensive rural electrification programmes using both decentralised diesel systems and renewable energy systems. Energy policies in PICs are dominated by regulatory measures governing the supply and use of petroleum products. In several cases, these policy measures are not part of the energy sector planning policies but are more associated with trading policies.

ENERGY SITUATION IN THE PACIFIC

In their attempt to attain a satisfactory level of energy security to facilitate social and economic development, PICs are faced with some unique and challenging situations and these include the following:

- Vast differences between the individual country populations, from about 5 million to less than 2000;
- Populations are mostly isolated and in very small concentrations. Therefore markets are very thin, difficult to serve, and without economies of scale;
- Most countries are completely without conventional energy resources. Availability of renewable sources varies widely but these are mostly un-exploited; and
- 70% of people are without access to electricity – compared to 30% worldwide.

A very narrow economic base exacerbates the above situation.

In addition the inability to formulate integrated energy policy in many ways contributed to the failure of energy programmes in the region. For example the early eighties saw the proliferation of externally-funded renewable energy projects in the region. Most of these projects proved to be an expensive exercise not only for the countries but also for the donor countries as several projects ceased operation after one or two years. There was insufficient consideration given to the
organisational and institutional support; training focused on the technicians and energy officials and there was little or no training provided to the users; energy programmes were more technology driven and had a narrow focus – providing electricity for lighting only; there was little assessment carried out on the impacts of using a modern energy carrier e.g. electricity, in communities that have a complex social and cultural system and energy programmes despite the pervasive condition of little involvement of governments had little synergies with the national strategic priorities. This in a way contributed to the lack of attention given to the energy sector by governments in region.

PICs’ energy use is dominated by imported petroleum. Indeed, the region can be regarded as among the world’s most dependent on fossil fuels for their economic development. Petroleum imports account for 15-25% of total imports and over 40-80% of total exports. The table below shows the total petroleum consumption for some PICs from 1990 to 1996.

**Table 1. Petroleum Consumption for Some PICs 1990 – 1996.**

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</thead>
<tbody>
<tr>
<td>A.Samoa</td>
<td>201,011</td>
<td>192,880</td>
<td>206,370</td>
<td>205,446</td>
<td>210,584</td>
<td>212,772</td>
<td>218,810</td>
</tr>
<tr>
<td>Fiji</td>
<td>340,737</td>
<td>307,991</td>
<td>385,997</td>
<td>460,740</td>
<td>474,074</td>
<td>472,736</td>
<td>414,843</td>
</tr>
<tr>
<td>PNG</td>
<td>676,885</td>
<td>704,444</td>
<td>713,852</td>
<td>737,938</td>
<td>762,000</td>
<td>777,900</td>
<td>977,346</td>
</tr>
<tr>
<td>Solomon Is</td>
<td>73,728</td>
<td>78,541</td>
<td>86,175</td>
<td>88,961</td>
<td>81,437</td>
<td>84,738</td>
<td>78,822</td>
</tr>
<tr>
<td>Tonga</td>
<td>35,268</td>
<td>40,720</td>
<td>38,630</td>
<td>42,313</td>
<td>41,233</td>
<td>40,296</td>
<td>34,618</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>31,060</td>
<td>33,541</td>
<td>32,668</td>
<td>32,571</td>
<td>35,579</td>
<td>28,255</td>
<td>36,377</td>
</tr>
<tr>
<td>W. Samoa</td>
<td>49,711</td>
<td>49,819</td>
<td>55,066</td>
<td>52,000</td>
<td>48,897</td>
<td>46,944</td>
<td>51,447</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,408,400</td>
<td>1,407,941</td>
<td>1,518,758</td>
<td>1,619,969</td>
<td>1,653,804</td>
<td>1,663,641</td>
<td>1,812,263</td>
</tr>
</tbody>
</table>

Note: Units in kl

Source: Petroleum Advisory Service, Pacific Islands Forum Secretariat (2001)

Figures obtained from the Petroleum Advisory Service of the Pacific Islands Forum Secretariat (Table 2) for 2002 on some PICs provide an indication of the amount of money PICs are spending annually for importing petroleum fuels.

**Table 2. Petroleum Import Value 2002.**

<table>
<thead>
<tr>
<th>Country</th>
<th>Volume (kl)</th>
<th>Value (US$)</th>
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<tbody>
<tr>
<td>Fiji</td>
<td>454,257</td>
<td>127,191,960</td>
</tr>
<tr>
<td>Kiribati</td>
<td>12,583</td>
<td>3,523,240</td>
</tr>
<tr>
<td>Samoa</td>
<td>53,764</td>
<td>15,053,920</td>
</tr>
<tr>
<td>Tonga</td>
<td>40,128</td>
<td>11,235,840</td>
</tr>
<tr>
<td>Tuvalu</td>
<td>2,790</td>
<td>781,200</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>29,369</td>
<td>8,223,320</td>
</tr>
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</table>

Source: Petroleum Advisory Service of the Pacific Islands Forum Secretariat
Oil remains the single most important energy source in PICs. This is despite the fact that many of these islands are endowed with reasonably good natural resources. Renewable energy sources in the region include, hydro, solar, ocean-based sources, geothermal, wind and biomass. In fact the availability of these renewable energy sources, which combined with the long distances between the supply and demand centres, should have facilitated the establishment of a renewable energy industry. However, generally speaking, renewable energy in PICs has failed to live up to expectations.

A lot of effort has been expended to promote renewable energy in Pacific. As a result, a rethinking on renewable energy is emerging on how best to put renewable resources to better energy use. Although renewable energy would not be the panacea for solving the energy problem, it could certainly play a much bigger role.

**NEW DEVELOPMENT IN PICS ENERGY SECTOR**

In several PICs the energy sector has not really been a priority sector but considered more as a social service and this in many ways has affected the planning and development of the sector. The “trickle down” effect of other more advanced sectors of the economy into the energy sector was predominantly the order of the day.

There had been several interventions made to try and address the development of the energy sector in PICs e.g. improved terms of petroleum fuel supply, expanding electrification to urban and widespread rural and remote island populations and development of renewable energy resources to replace the imported fossil fuels. But these have been generally piecemeal rather than part of clear and practical national energy policies and the strategic action plans to implement these policies have had limited success\(^1\).

Very recently, some global events have forced PICs to re-assess their energy sector planning and development programmes. Key events include the World Earth Summit on Sustainable Development (WSSD) in Johannesburg, the Commission for Sustainable Development (CSD) especially CSD9 which focused on energy and transport, the Millennium Development Goals, the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and its mechanisms, and the Barbados Programme of Actions (BPoA) to name a few.

\(^1\) Pacific Islands Energy Policies and Strategies Action Planning (PIEPSAP) Project Document – A project aimed at improving the capacity of PICs to develop national energy policies, plans and practical mechanisms.
Various initiatives are already underway to support renewable energy projects e.g. the GEF/UNDP Pacific Islands Renewable Energy Project (PIREP), provides a detailed renewable energy sector assessment in each of the 14 PICs; there is also another initiative to set up a “Centre of Excellence” on energy, for training, information and dissemination of issues relating to renewable energy; and yet another is called “Renewable Energy and Energy Efficiency for the Pacific” (REEP) targets to address the barriers to the development of renewable energy and energy efficiency and supports the “… ultimate goal of significantly increasing PICs’ rural community access to commercially viable energy services.” In addition to the above, the Secretariat of the Pacific Community (SPC) has just completed an Australian-France funded renewable energy programme in some selected PICs. The programme overarching aim was to accelerate and expand the promotion of renewable energy technologies and their appropriate management and institutional framework to ensure their sustainability.

The above events coupled with a renewed interest in the energy sector of the PICs as a result of the desire to flex the historical links between economic growth and increased use of energy, and between energy use and environmental damage have really been the driving forces behind the reassessment of the energy sector planning and energy programmes in the region.

**EVALUATION METHODOLOGY**

As pointed out earlier the case study focuses on the development of a regional policy and two country-specific energy policies.

(a) Pacific Islands Energy Policy and Plan (PIEPP)

Several regional and bi-lateral activities have been introduced under the initiative of regional energy programmes. Prominent amongst these is the formulation of the Pacific Islands Energy Policy and Plan (PIEPP). The PIEPP was widely circulated to SOPAC member countries and the CROP Energy Working Group (EWG)\(^2\) members for comment before it was tabled at the Regional Energy Meeting held in Rarotonga in 2001. At this Regional Meeting through a consultative process member countries expressed their support for the PIEPP and endorsed the document as a regional framework for the development of the energy sector in the region and as a basis for building regional and international partnerships. The PIEPP was also endorsed as a document that Pacific Island Countries (PICs) could adopt for the purpose of planning and developing their own national energy policies and programmes.

\(^2\) CROP EWG comprises of the University of the South Pacific (USP), Pacific Islands Forum Secretariat (PIFS), South Pacific Applied Geoscience Commission (SOPAC), South Pacific Environment Programme (SPREP), Secretariat of the Pacific Community (SPC – has ceased to become a member because it no longer runs energy programmes) and the Pacific Power Association (PPA - associate member), UNDP Samoa/Suva, Greenpeace and Pacific Resource Concern Centre.
For planning and policy development purposes, the energy sector is organised and analysed according to the following six themes, shown graphically in Figure 1, which have become the standard classifications for integrated energy planning. Four cross-cutting areas, which apply equally to all other themes, are also identified at the bottom of the figure. The PIEPP is structured using these ten themes.

![Figure 1. Standard classifications for integrated energy planning.](image)

The level of support given to the PIEPP from PICs is a testimony that the themes and plans are consistent with how the countries perceive their national energy sector planning programmes should be developed.

The development of the policy statements and strategies in the PIEPP was allocated to the CROP-EWG where each organisation was given specific themes to draft. The allocation of the themes was based on the current expertise and the respective work programme areas of that organisation. PIFS was tasked with the formulation of policy statements and associated strategies and activities relating to the regional energy planning, transport and petroleum, SOPAC was allocated with policy and planning, efficiency and environment, PPA was allocated power, SPC, renewable energy and rural/remote and USP, capacity building. After the policy statements and strategies were formulated they were again discussed and refined by the EWG before they were sent to the countries for comment. The response from the countries was disappointing as only a few made an attempt to provide comments. The countries’ comments were incorporated and the policy statements and associated strategies were finalised. The policy statements and strategies were tabled and endorsed at the Regional Energy Meeting held in Rarotonga, Cook Islands in 2002 (REM2002). Almost all Pacific Islands Countries and Territories (PICT) were represented at the meeting. The REM2002 recommended that the policy statements and associated strategies
be tabled at the various CROP organisations’ council meetings. The draft PIEPP was first tabled at the SOPAC Council meeting held in the Marshall Islands in September of 2001. Later other CROP organisations also had the opportunity to look at and endorse the regional energy policy statements and associated strategies during their council meetings. To make the PIEPP complete the REM 2002 recommended that the EWG formulate an action plan to ensure that the objectives of the policy statements are achieved.

In formulating the action plans the EWG adopted the same process used in developing the policy statements and strategies.

(b) National Energy Policy

A National Energy Policy reflects the goals and commitment by the current Government (and, hopefully, successive Governments) for the co-ordinated development and management of the national energy sector over a period of time usually short- and medium-term (3-10 years). The policy document provides a guideline for planning energy programmes so as to ensure that they are consistent with Government’s intent in meeting its overall social and economic development goals.

The policy encompasses all the energy sub-sectors of an economy in a co-ordinated and integrated manner. This is important, because any measure or programme implemented in one energy sub-sector will impact on other energy sub-sectors. For example, the removal of taxation anomalies from petroleum product prices will immediately impact the current and future Government revenue, consumption patterns of individual consumers, and the cost competitiveness of alternative energy sources, such as solar photovoltaic (PV) arrays in outer island development programmes, to name a few.

Several Pacific Island Countries (PICs) have, with the assistance provided through the regional energy programme, developed their own national energy policy. However, very few countries have taken their policy document beyond the draft stage. This is due mainly to the staffing problems faced by the energy offices in PICs and the priority respective governments accorded to the energy sector in their development plans. For most PICs, energy sector planning is limited to monitoring of petroleum imports and the provision of electricity to rural areas. Usually these responsibilities are undertaken by other Government organisations as opposed to a dedicated Energy Unit/Department and it is not unusual that these responsibilities always fall on the shoulders of a single staff member that usually has other additional responsibilities.
However with the recent global events (refer to New Developments in PICs Energy Sector above) PICs have either collectively or individually made some attempts to re-look at their energy sector planning and many are starting at the policy level. Two countries, Cook Islands and the Republic of the Marshall Islands have recently had their respective energy policy endorsed by their respective Governments.

(i) Cook Islands National Energy Policy

The Cook Islands had an existing National Energy Policy (NEP). In 2000 the Cook Islands Government sought assistance from SOPAC to have its NEP reviewed. SOPAC in consultation with the Cook Islands Energy Division and key stakeholders from both government and the private sector developed a draft policy. The consultation was in the form of a workshop where participants were encouraged to identify key areas that needed to be addressed by the NEP. Furthermore participants were also encouraged to identify policy statements appropriate to the key areas identified earlier. SOPAC acting as facilitator during the consultation provided the guidance and direction that resulted in the identification of appropriate policy statements and associated strategies and action plan.

The draft policy comprises of the following focal areas, Planning and Management, Power Sector, Renewable Energy, Petroleum, Transportation and Environment. Encapsulated in the national energy policy is the overall vision of Government on how the various sub-sectors of the energy sector are to be developed over a 5 to 10 year period beginning in year 2003. The energy sector vision of “To facilitate reliable, safe, environmentally acceptable and cost-effective sustainable energy services for the people of the Cook Islands” is linked to the national vision of “Working together with the people in building a better nation”

The first draft was premised on the Energy Division being upgraded to a Ministry of its own. However, this did not eventuate and the Energy Division still remained part of the Ministry of Works and Energy. This necessitated a change in the wording of some of the statements in the first draft. The opportunity to re-look at the first draft was provided through a UNESCAP mission to the Cook Islands in 2001. The mission provided useful comments on the draft policy.

An independent consultant was commissioned by the Cook Islands to re-look at the draft policy in light of the comments raised by the UNESCAP mission. A local consultant was recruited to undertake this work. The policy document produced by the local consultant was totally different both in structure and content from what was originally produced by SOPAC. SOPAC was again requested by the Cook Islands to re-look at the policy document produced by the local consultant. SOPAC in providing assistance reverted back to the original policy as adopted as a version and through integration of relevant language from the PIEPP jointly prepared a new up-to-date draft...
energy policy. The rationale for this was that the end result was a draft product of wider consultation and a consensus from stakeholders. It is to be noted that the final aggregated version was finally submitted to Government and Cabinet was endorsed in early May 2003 and as a result of perseverance of the Cook Islands Energy Division and timely technical assistance from SOPAC.

(ii) Marshall Islands National Energy Policy

Like the Cook Islands the National Energy Policy for the Marshall Islands mirrored the Pacific Islands Energy Policy and Plan. For the Marshall Islands the main driver for the development of their (National Energy Policy (NEP) has been its endeavour to improve the well being of its population through increased access to electricity. The Government has initiated a number of electrification programmes. These include electrification of the outer islands, the Ministry of Education’s schools’ electrification programme and the Ministry of Health’s electrification programme. In addition to these, the Government has decided to utilise about US$2 million available under EU-ACP Cotonou Agreement for installing solar home systems in the outer island communities. These electrification programmes coupled with Government commitment towards adhering to the principle of sustainable development are the main drivers for requiring a NEP.

Process in the Formulation of the Marshall Islands NEP – The Government of the Marshall Islands through the SOPAC National Representative requested SOPAC to provide assistance in the formulation of an appropriate NEP. A SOPAC mission was sent to the Marshall Islands in 2002 to consult with various government officials including the staff of the Ministry of Natural Resources. Consultations were held with the following ministries: Planning and Economic, Outer Island Affairs, Health and Natural Resources. In addition the following organisations were also consulted, Marshalls Energy Company, National Telecommunication Company and Mobil Oil Company.

As a result of these consultations, SOPAC in collaboration with the Energy Planner in the Ministry of Natural Resources was able to identify key issues pertaining to the energy sector planning in the Marshall Islands. These key issues include, National Energy Sector Coordination and Planning, Renewable Energy/Rural Electrification, Power Sector Planning, Petroleum Sector Planning, Energy Efficiency and Conservation and Transport Sector Planning. Common to the above key areas are two cross-cutting issues and they are environment and capacity building. These two cross-cutting issues are important from the point of view of implementing the NEP. The Marshall Islands are low-lying coral atolls and have very limited land area. Any environmental impact caused by climate change and sea-level rise will have a great adverse impact on the

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3 The Ministry of Natural Resources is responsible for the energy sector planning.
4 The Planning and Economic Division comes under the Office of the President.
environment and the fragile ecosystems. It is therefore imperative from the policy point of view that careful considerations are given to the impacts of energy programmes and projects on the environment. Equally important from the Marshall Islands’ point of view is that the right level of skills and knowledge is available to implement the NEP.

Once the key areas were identified, SOPAC and the Marshall Islands Energy Planning Division met to formulate relevant policy statements for each key area. The draft policy statements were then discussed in a stakeholder meeting coordinated by the Energy Division. Participants were drawn from the public and private sectors as well as civil society organisations. The consultations looked at the linkages between the energy sector and the rest of the economy and related this to the draft policy statements for each sector. As a result some policy statements were changed and new ones added to reflect what participants felt was appropriate for the energy sector planning for the Marshall Islands.

It is to be noted that the political will of the current Government played a significant role in facilitating the process of formulating the NEP. The Minister responsible for Energy kept himself closely associated with the various stages of the development of the NEP and this helped in taking the policy document through the Government machinery right up to Cabinet level within six months from the commencement of the policy formulation.

RESULTS AND DISCUSSION

National energy planning in the Pacific tends to follow the traditional, sub-sectorally disaggregated approaches, which have inherent shortcomings. In many cases analysis of the energy sector is done independently of other sectors of the economy. This often results in the failure of many programmes and projects. For example several countries in the Pacific have a substantial rural electrification programme but often, rural electrification is seen only as having electricity for lighting. This means that electricity is used only at night and often this is restricted to a few hours (3-4 hours) for lighting only. Electricity is a versatile modern energy carrier and its uses to enhance the earning capacity of the populace are often not tapped especially in agriculture, fishery, cottage industries, etc in the rural areas.

Tools and techniques used in planning are often not well understood by people working in the energy sector. Several countries have attempted to put in place energy plans/programmes but in many cases these plans are often not implemented or funded by Government because they are looked at as being unrealistic by national planners.
The above leads to yet another problem, which is the lack of Government commitment to the energy sector. In most PICs the energy sector planning is relatively low in terms of Government priorities. The energy programmes are always under funded and in a lot of cases areas of energy planning is always understaffed and this limited staff resources may also be responsible for other programmes aside from energy. These staff may also have limited experience in working in the energy sector. More often PICs would rely on donor countries to provide external consultants to work in the energy sector and where this happens there is seldom any training programmes put in place to train local counterparts on energy sector planning. This brings about problems of varied nature including the lack of continuity of energy programmes.

At project level, a major problem associated with renewable energy is that the technology is relatively new. As such there is a need to establish an appropriate framework for the introduction of such a technology in the Pacific. The competition it faces from mature technologies puts a renewable energy technology at a disadvantage. Unlike the mature technologies, the infrastructure necessary to promote renewable energy technologies in the Pacific requires considerable support and nurturing. In addition problems related to poor designs, improper component specification, improper installations, lack of maintenance and the lack of expertise and institutional capacity to plan and manage renewable energy technologies are contributing factors to failures of renewable energy projects in the Pacific.

The lack of a well-structured energy database proves to be a major obstacle in the energy planning process. SOPAC is working closely with PICs for establishing and maintaining a compatible, accurate, reliable and up-to-date energy supply and demand database for each country. Several of these PICs are still encountering difficulties in collecting energy data down to the levels of disaggregation envisaged. Hence as a result, only limited progress has been made with the collection, verification and inputting of national energy data and statistics.

The lack of policy framework both at the micro- and macro-planning levels to guide the economic and development planning process is seen as a major obstacle to proper planning. In the energy sector, programmes are implemented on an ad hoc basis and often not relevant and inappropriate to the needs of the community they purport to benefit, and on many occasions communities find themselves used as “guinea pigs” by technology developers from the developed countries.

In PICs, all matters related to energy sector planning are not handled by the Department of Energy. In some small countries, petroleum fuel pricing is often looked after by the Ministry of Finance while other ministries or the petroleum company (with better technical skills) will be responsible for the petroleum transport, storage and safety measures. Similarly, with the power
sector, the Energy Division may be mandated with the policy matters but matters relating to national tariffs lies with the Ministry of Finance or the utility itself. While this may be looked at as “weakening the link” in energy planning, it offers an opportunity to these various institutions to intimate with each other their priorities, hence creating a better understanding on how best to address common issues.

There have been a number of technical reports prepared over the years by donor agencies and others on renewable energy technologies and their potential suitability for the PICs. In several cases the reports are too technical or academic in style\(^5\). There is an apparent lack of consideration on the cultural aspects of project planning and implementation. Projects and programmes have been implemented with more consideration accorded to the technical and economic parameters with less emphasis on the cultural aspects of the people and the community in which it is set to function. The people and the community are a complex system as a whole, with specific requirements and peculiarities that are dictated by cultural norms. This complex system involves the way people cook, build their homes, use commercial energy, maintain their surroundings/environment and how to live in an environment with its peculiarities such as abundant or lack of sunshine and rain, plentiful or lack of natural resources and a whole lot of parameters, including their vulnerabilities.

**CONCLUSION**

It must also be pointed out that in the case study presented above, IEP is limited to consultation process in the form of “committees” and does not involve in-depth analysis of the various policy frameworks of government departments and agencies. This approach is seen as the first stage to raising awareness at the country level on the process of IEP.

From the case study it is obvious that in the Pacific there is a need to accelerate and expand the IEP process to support the various initiatives in the energy sector. Capacity building in the process and principles of IEP will need to be vigorously promoted in the various institutions, departments and agencies. This process will need to be carried out in a progressive manner. As a starting point a dedicated task team (current committee set up for policy formulation can be used) needs to be set up and trained in the principles and processes of IEP. This team can then be given the responsibility of making recommendations as to how the IEP theory and principles can be effectively incorporated into the energy policy analysis and formulation. This could be followed up with professional staff training.

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The availability of up-to-date energy data is essential in IEP. The absence of a structured database coupled with the lack of professional capacity to incorporate the IEP process into the policy analysis and formulation will still allow energy policies in PICs to continue to be formulated along sub-sectorial lines with insufficient attention given to linkages.

Unless integrated energy planning is incorporated into the energy sector planning process, the gap between the energy sector and other traditionally more advanced sectors in PICs will keep on widening. One potential impact of such a scenario is that overall sustainable development will be impaired.

Integrated Energy Planning is seen as a tool that enhances the planning process and at the same time ensures that planning is well coordinated, taking into account other sectoral issues thus maximising the benefits of a particular energy programme and/or project. Considering the limited energy sources in PICs and the fact that they are heavily dependent upon imported fossil fuels, the application of IEP as a decision making tool to ensure that the energy demand are met with the most cost-effective plan cannot be over emphasized.

This will be one of the keys to ensuring sustainable development in the future but also that there will be, in the future, the opportunity to acknowledge that not only the Energy sector needs to adopt an integrated approach but that through a strategic management planning approach other key partners/stakeholders would become and remain important components in the whole IEP approach.
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