

Public policy for Pacific environments and resources

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Unlike the industrialised countries of the Pacific Rim, the economies of Pacific islands remain dependent on natural resources. Their exports are dominated by minerals, timber, fish, agricultural products and tourism. Moreover, in contrast to Pacific Rim countries—where the majority of the population is fully integrated into the cash economy—a large proportion of the population of the Pacific subsists on local resources.

Another major difference between the surrounding industrialised nations and Pacific islands is the nature of resource tenure. Rather than individual private ownership or state ownership, land resources are mostly held under customary tenure, and inshore marine resources are also frequently under communal control.

These distinguishing factors—a dependence on natural resources and the predominance of traditional tenure—suggest that conservation policy in the Pacific needs to be different from that of countries of the industrialised Rim. The paucity of public financial resources in the Pacific is another factor that suggests that, to be effective, models of environmental conservation and management in the Pacific islands should be different from those adopted by their rich neighbours.

Conservation policy in Pacific island

countries needs to be an integral part of sectoral policy because sectoral policy is driving exploitation. Moreover, sectoral policy should at the same time be decentralised to involve customary property right holders because their decisions also have a large bearing on the level of exploitation and conservation of resources.

Natural resources and economy

The fisheries resource of some well-endowed small island states contributes heavily to their economies and budget revenues. In this category are the Federated States of Micronesia, Kiribati and Marshall Islands. In other Pacific island countries, the contribution of fishing to the economy appears to be modest—for example in Fiji and Solomon Islands. However, using national accounts to estimate the economic importance of fishing ignores the major contribution of inshore resources to subsistence, guaranteeing food security and employment. The percentage of coastal households fishing for local consumption is over 80 per cent in Solomon Islands, Kiribati and Marshall Islands. Moreover, a significant proportion of households in many countries are integrated into the cash

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economy through the sale of local products including *bêche-de-mer*, shells and reef and deep slope fish.

The economic importance of subsistence fishing can be demonstrated by imputing its foreign exchange savings. The World Bank (1995) has estimated that these are in the order of US\$8 million in Fiji and Solomon Islands and US\$1 to US\$3 million in Vanuatu and Samoa. Population and commercial pressures on the inshore resources of the region are such that their sustained contribution in the long term is in doubt unless inshore fisheries management strategies are implemented (Dalzell et al, 1995; World Bank 1995; Veitayaki 1995).

Apart from agricultural land and marine resources, the other major renewable resource of the Pacific islands is natural forest. Melanesian countries rely heavily on the export of natural forest timber for foreign exchange and budget revenues. For example, in 1994 and 1995 in Papua New Guinea, log exports amounted to K483 million and K437 million, generating export taxes of K134 million and K145 million, equivalent to 8.4 per cent and 12 per cent of total government tax revenues, respectively. An additional benefit of the forestry sector of Papua New Guinea, based principally on the export of unprocessed logs, is that it employed some 7,500 people, or about 4 per cent of the Papua New Guinea formal workforce, in 1995. In the case of Solomon Islands, no less than 26 per cent of tax revenues and 8 per cent of formal employment was generated by log exports in 1993.

The lack of forest management capacity in Melanesia, both in governments and among landowners, has meant that destructive logging practices have been widespread, that levels of harvesting have been unsustainable and forest stocks have depreciated (Duncan 1994; Montgomery 1995; World Bank 1995).

The challenge to governments is the

adoption of policies that will ensure that the benefits derived from renewable resource sectors are continuous and long term. Given that these resources are often held under traditional tenure arrangements, policies incorporating sustainability restraints must also be designed to incorporate the aspirations of the local resource owners.

In the case of the other major class of resources—the non-renewables, such as minerals including oil and gas—the challenge to governments is to effect the internalisation of external social costs associated with their exploitation. If these are not internalised, then the net social benefits of mineral exploitation are reduced. Of the Melanesian countries, New Caledonia is particularly mineral-rich, while Fiji and Solomon Islands have gold resources, and in Papua New Guinea the minerals sector contributes over 60 per cent of the total value of exports. Extensive mining of phosphate has occurred in Maketa, French Polynesia, in the Republic of Nauru and in Banaba Island in Kiribati, sometimes with high external costs.

The sustainability issue in relation to the renewable resources of fish and forests is the level of harvests relative to stocks and the regeneration rate. The depletion—or the depreciation—of mineral stocks, on the other hand is, by its very nature, unsustainable. This does not mean that the minerals should be left in the ground, but it does mean that the mineral revenues of the government need to be maximised, saved and invested—if the full benefits of mining are to be passed on to the public.

A sustainability indicator

An analysis of the sustainability of the exploitation of resources in the Pacific can be taken further by adopting a 'sustainability indicator'. The indicator measures the depreciation in the mining

and mineral sectors and on man-made capital as a proportion of national income (Pearce and Atkinson 1995). It also takes account of depreciation of natural assets caused by externalities. The level of depreciation is compared with the level of savings in the economy, as a proportion of national income. The criterion for sustainability is that the savings ratio should be greater than the depreciation ratio: if it is, then the suggestion is that a country is increasing its assets rather than running them down. Sustainability therefore becomes an issue of macroeconomic policy, incorporating various sectoral policies.

An application of the sustainability index to Papua New Guinea suggests that it has been negative for the last 10 years (Hunt, forthcoming)—the total depreciation of natural and man-made assets has consistently exceeded total national savings. The level of consumption of the proceeds of mining and forestry has prevented the accumulation of capital for investment, through savings, sufficient to offset the depreciation of national assets.

The urban sector

Another important issue in the Pacific is the minimisation of social costs due to degraded environments in urban areas. While the Pacific is only lightly industrialised (Fiji has a sizeable garment industry), the towns and cities are the focus of employment opportunities and urbanisation is occurring at a rapid rate: a rate that is overwhelming the urban planning and management capabilities in the region. On atolls in particular, high urban concentrations are basically incompatible with limited land areas and fragile environments.

Disease associated with changes in diet and lifestyle is now imposing major burdens on health services. Fiji, Kiribati

and the Marshall Islands are exhibiting this changing pattern, but at the same time they still exhibit a high incidence of infectious diseases. This traditional pattern of disease dominates in the least-developed Melanesian countries (UNDP 1994); moreover, in many urban centres overcrowding contributes to a high incidence of tuberculosis.

Sewerage, water and waste disposal systems—the basis of the protection of public health—are usually based on Western systems and are very expensive to install. The amount of decaying urban infrastructure around the region attests to the fact that maintenance requirements are beyond the financial capacity of local authorities. The adoption of user-pays policies has an important role in generating revenues for service provision and maintenance. However, high levels of non-payment for services are not only linked to poor cost recovery; they are also linked to the fact that services are inadequate. In a study of villages in the Port Moresby Capital District, it was found that only six households out of 17 paid for water. However, of the 17 households, seven received piped water for less than three hours per day and four, piped water for less than eight hours per day, while three households received water only in 44-gallon drums (Hunt and Wangi 1998:Table 1).

Hand-in-hand with cost recoupment must go improvements in the level of service, and this implies the need for greater investment in infrastructure. While user pays is essential in urban management, its effectiveness in generating revenues is somewhat constrained by the levels of urban incomes which are low in comparison with Pacific Rim countries.

The great challenge to urban policy-makers in the Pacific is therefore the improvement of the quality of life in a manner that is financially sustainable. Possible solutions are the choice of urban

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development paths that minimise capital and maintenance costs on the one hand and innovative fiscal policies that will raise sufficient revenues for maintenance on the other.

Institutional structures

If policy within the fishing, forestry, mining and urban sectors is the key to conservation and to the internalisation of social costs, then it is the ministries and departments responsible for these key areas that bear the responsibility for the formulation and implementation of conservation and environmental management policy.

A case in point is the conservation and management of forests in Papua New Guinea. There, keys to the transition to sustainable yield forestry are limitations on annual harvest to levels that are sustainable and the provision of funds for management. The capacity of the Papua New Guinea Forestry Authority has been strengthened through the 1995 Economic Recovery Programme of the World Bank. Likewise it is the Forestry Authority that through the structure of the forest revenue system has the power to ensure the equitable distribution of the proceeds of logging among customary owners, the government and the logging companies.

The fisheries departments of Pacific island countries have traditionally encouraged the development of the fisheries sectors. However, through their regional representatives they are also in the best position to initiate, in cooperation with the customary marine tenure holders, monitoring and control of overfishing and destructive practices such as those associated with the live fish trade.

The exploitation of the oceanic resources (mainly tuna) of the region, which constitutes one of the great fisheries of the world, is largely unmanaged but appears to be at sustainable levels for most

species (although by-catch problems, for example in the case of albatross, are a source of concern). The tuna resource straddles and moves between the exclusive economic zones of Pacific island countries and is most appropriately managed by cooperative arrangements between island states. The South Pacific Commission and the Forum Fisheries Agency are well placed to both monitor stocks and to begin to formulate comprehensive management plans on behalf of member states. However, management will be no easy task given the large number of Pacific island states involved and the need to engage the powerful fishing nations of the Pacific Rim that are the main harvesters.

In the minerals sector, it is mining departments that are responsible for drawing up the conditions of mining leases and that are in a position to encourage the internalisation of external costs by mining companies. However, when the government becomes a major shareholder in mining and oil operations, as it has in Papua New Guinea, a conflict of interest arises between the desire to maximise revenue and to minimise social costs. In practice, it is in the interests of resource companies to internalise external costs as far as possible in the face of strong customary land tenure. Since the closure of the Panguna mine compensation systems for damage to the environment have become well developed.

In the urban sectors it is the urban administrations that are responsible for the services that affect the quality of *in situ* environments, and that have a large bearing on health through the disposal of sewage and waste and the supply of potable water.

The above argument calls into question the role of departments of the environment and conservation in Pacific islands. Compared with the resource and finance departments, environment departments in

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the region lack political clout. They tend to be regulatory and are therefore seen as stifling development, in contrast to the sectoral departments that are encouraging development. Moreover, regulation requires resources—particularly at the regional level where exploitation of resources is taking place—and environment departments are almost always underfunded. It is the integration of environmental issues with mainstream economic policymaking and the application of economic incentives and disincentives, at macro as well as micro level, that will advance the causes of conservation and environmental management, rather than the expansion of environment departments.

Economics and policy

Incentives and disincentives are powerful tools for fostering the conservation of natural resources and for protecting environments. User pays systems—that generate revenue as well as sending price signals—are particularly crucial in the delivery of urban environmental services.

The payment of subsidies to landowners to conserve ecosystems and biodiversity is gaining ground throughout the Pacific region. These incentives, using such vehicles as trust funds, covenants, and the Global Environment Facility, recognise and compensate for the opportunity costs of landowners in the conservation of natural resources. A new instrument, the ‘carbon offset’, may also have a role to play in forest conservation in the Pacific; electricity utilities and other greenhouse gas emitters seek carbon credits and pay for the sequestration of natural forest. Accompanying the trend in the adoption of financial instruments in environmental protection in the Pacific is the realisation that ‘conservation’—that includes local owners and users of resources—must be the goal, rather than

‘preservation’ as embodied in the national parks models of the countries of the Pacific Rim. Non-government organisations are well placed to administer conservation funds and other such instruments given their links with the overseas sources of funds and their representation close to the resource owners.

Property rights—that is, their clarity and enforceability—play a major role in the management of resources and environments in the Pacific. Strong tenure systems in forests and marine resources increase the likelihood of the internalisation of the costs of exploitation. In the case of logging and fishing companies, agreements that confer long-term resource use rights encourage conservation through the internalisation of the costs of overharvesting. The strengthening of marine property rights through the declaration of exclusive economic zones has conferred power on Pacific island countries to control fishing effort, both in their own zones and collectively. Mining companies are now particularly careful to internalise environmental costs, at least in the vicinity of mine sites, in the face of strong customary land tenure.

Given the heavy competing demands on funds and their limited supply, government financial resources for conservation and environmental protection are often inadequate, even for a bare minimum of operation. However, two possible sources of government revenues present themselves: royalties, based on the extracted value of resources and tapping the resource rents of fishing, mining and logging; and user pays fees, generating revenues for the services provided by government departments to the public or to private enterprise. The level of royalties extracted in fishing and forestry has tended to be low, leaving the exploiting companies with windfall profits (Duncan 1994; World Bank 1995). In practice, Pacific island governments have tended to rely on export taxes, rather than

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royalties, to gain benefits from resource industries. However, export taxes have the disadvantage of lowering the price to resource owners and, moreover, exposing government revenues to export sector performance that can be very variable.

The 'earmarking' or 'hypothecation' of royalties and charges so that the revenues can be directly employed in the management of the services and resources that generated the revenues is a point of contention. Treasury departments make the point that such revenues must be funneled into consolidated revenues from whence they can be applied to portfolios with the highest marginal social returns—such as education or health. However, a counter argument is that the high marginal social benefits of resource management and environmental protection are invariably ignored in the disbursement of funds, making earmarking, for at least a proportion of revenues, essential. It should be noted that the sectoral departments are not only in the best position to carry out conservation of resources but they are also in the best position to impose and collect earmarked charges.

The integration of economic and environmental policy and the adoption of economic instruments in Pacific island countries are subjects of a forthcoming book by the author to be published by the National Centre for Development Studies. *Pacific Development Sustained* details policy initiatives in the forestry, marine, mining and urban sectors. The analysis of the application of economic instruments and economic policy in the conservation of resources and biodiversity and for environmental protection is augmented by some 30 case studies.

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