

Chapter 10

Environment and Conservation Policy and Implementation

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This chapter provides an overview of environment and conservation policy in Papua New Guinea. It addresses how environment and conservation policy protect the physical, biological and social/cultural environments of Papua New Guinea and looks at how, in a rapidly changing country like Papua New Guinea, human impact is or ought to be managed. Hence the policy areas that are covered include areas of environmental governance that impinge on management of the environment, resource use, and conservation of natural and cultural resources, and, more broadly, policy and planning for sustainable development. The main focus is the role of the Department/Office of Environment and Conservation (DEC). A more comprehensive review would need to discuss the role of the Department of National Planning¹ and the relationships between DEC and all other departments, provincial and local-level governments, the private sector, non-government organizations (NGOs) and the general community.

This review outlines the history of major policies and policy initiatives; discusses some of the challenges to environmental management and their concomitant problems; and finally raises questions and suggests areas in which changes need to be made to render policy, and in particular policy implementation, more effective.

The colonial legacy and the constitution of 1975

Prior to independence in 1975 there was little policy or legislation related to environmental management and conservation, except for some ordinances on fauna protection, the crocodile trade, and national parks and gardens (Unisearch PNG 1992). At independence, Papua New Guinea's founding fathers had the foresight to enshrine environmental and sustainability concerns in the national constitution (*ibid.*). The five National Goals and Directive Principles of Papua New Guinea's constitution reflect a commitment to sustainable development. The fourth is about natural resources and environment:

Papua New Guinea's natural resources and environment should be conserved and used for the collective benefit of all and should be replenished for future generations. We accordingly call for:

1. Wise use to be made of our natural resources and the environment in and on the land or seabed, in the sea, under the land, and in the air, in the interests of our development and in trust for future generations;
2. the conservation and replenishment, for the benefit of ourselves and posterity, of the environment and its sacred, scenic and historic qualities; and
3. all necessary steps to be taken to give adequate protection to all our valued birds, animals, fish, insects, plants and trees.

The fifth National Goal (*Papua New Guinea Ways*) also emphasized the need to use Papua New Guinean organizational forms, and public participation was stressed in the second National Goal (*Equality and Participation*). The first National Goal is about *Integral Human Development*. These concepts were to be embodied in decision-making.

Environmental policy from 1975 to 1990

At self-government in 1973, a ministry of Lands and Environment was established, but there was no articulated environmental policy. A separate ministry for Environment and Conservation was established in 1974, supported by an Office of Environment and Conservation (OEC); in 1985 this became a full department (Unisearch PNG 1992).

In 1976 a Statement of Environment and Conservation Principles was accepted by the National Parliament (Office of Environment and Conservation 1976). Significant aspects included: the need for ecological, social and culturally suitable forms of development and their consideration in project planning; sustainability; environmental responsibilities; environmental education and awareness; the role of the 'polluter pays' principle; and Papua New Guinea's international role and responsibilities.

By the end of the 1980s there was a plethora of legislation covering areas related directly or indirectly to environment and conservation. These are outlined in Unisearch PNG (1992), Mowbray (2000, 2005) and Yaru and Bulina (2005). Important legislation directly under the ministry and Department of Environment and Conservation included: the *Environmental Planning Act*, 1978; *Environmental Contaminants Act*, 1978; *Conservation Areas Act*, 1978; *Water Resources Act*, 1982; *Fauna (Protection and Control) Act*, 1966; *International Trade (Flora and Fauna) Act*, 1979; and *National Parks Act*, 1982. Other relevant legislation included the *Physical Planning Act*, 1989 and the *Land Act*, 1962, which are significant in Papua New Guinea where only about 5 per cent of land is owned or has been compulsorily acquired by the state.

Together these acts comprised a body of legislation aimed at ensuring the delivery of effective environmental management, affecting the aims of the National Goals.

Since independence a good deal of other legislation has been enacted relating to environmental goals. These include legislation in the forestry, fisheries, mining, energy, health, town planning, water planning, and agriculture sectors (Unisearch PNG 1992, 110). Further, Papua New Guinea has become party to many international conventions and treaties, which in some cases have required enabling legislation which has mostly been enacted (see Unisearch PNG 1992; Mowbray 2000, 2005; Piest and Velasquez 2003; Yaru and Bulina 2005). Two notable recent treaties are the *Kyoto Treaty on Climate Change* of 2000 and the *Persistent Organic Pollutants (POPS) Treaty* signed in Stockholm in 2001.

Rio and after: policy initiatives since 1990

The National Sustainable Development Strategy

Papua New Guinea produced its own national report for the 1992 World Summit on Environment and Development, also called the Rio Earth Summit (Unisearch PNG 1992) and the governor general and the Environment minister led a high-powered delegation from Papua New Guinea to the Summit. Papua New Guinea signed the various Rio instruments, committing itself to the global strategy for sustainable development² (Department of Environment and Conservation and Department of Foreign Affairs 1992). In 1993 Papua New Guinea developed its own National Sustainable Development Strategy. The University of Papua New Guinea (UPNG) assisted this process by running the annual Waigani Seminar on the theme, *From Rio to Rai: Environment and Development in Papua New Guinea*. These developments are outlined in various documents: *Stretim Nau Bilong Tumora* (Department of Environmental Science University of Papua New Guinea and Policy Co-ordination and Monitoring Committee of Department of the Prime Minister and NEC 1993); *Yumi Wankain* (United Nations Development Programme (UNDP) 1994); and the Waigani Seminar book series, entitled *From Rio to Rai* (Gladman *et al.* 1996).

This commitment to sustainable development was reiterated when Papua New Guinea's National Executive Council (NEC) endorsed the *National Sustainable Development Strategy* in 1994. The *National Sustainable Development Strategy* was a program of comprehensive capacity building and support for resource and environmental planning, development and management. It was Papua New Guinea's 'Agenda 21', our response to the commitments given by the government at the Rio Earth Summit in 1992 and a reaffirmation of the Five Goals and Directive Principles of the national constitution. It was our commitment to ecologically sustainable development (ESD), the creation of a process for an

ecologically and economically sustainable, socially equitable society (Diesendorf 1997).

The activities and recommendations generated by both Rio and by the 1993 Waigani Seminar seem now to have been largely forgotten, or at least given very low priority, though hopefully this is changing. The *National Sustainable Development Strategy* became caught up in a number of ministerial and departmental reshuffles, ending in the Department of National Planning and Implementation. Some of the outcomes are reflected in the 1998 *Papua New Guinea Human Development Report* (Office of National Planning 1999) and the *Papua New Guinea Population Policy* (Department of Planning and Monitoring 1999). In 2000 Papua New Guinea also committed itself to the United Nations Millennium Development Goals (UNDP 2003) and recently published its own *PNG Millennium Development Goals* (Government of Papua New Guinea and United Nations in Papua New Guinea 2005). Through 2005–2006 various workshops have been held in Papua New Guinea involving government departments and including other Pacific nations on ‘mainstreaming environment into development planning’ (Saulei personal communication 2005; Banga personal communication 2006). In January 2006, through funding from the Global Environment Facility (GEF), the Papua New Guinea government, working with Columbia University and local Papua New Guinea stakeholders/participants, has initiated a strategy to implement Goal 7 of the Millennium Development Goals — ‘ensure environmental sustainability’ (Melnick *et al.* 2005). Both DEC and UNDP regard this as a high priority and have initiated activities in both waste management (DEC, Joku personal communication 2006) and in broadening the parameters to be considered (UNDP, Bade personal communication 2006). However, many lessons are still to be learned. We continue to exploit our natural resource base unsustainably, especially in mining, petroleum and forestry, and use the income generated on questionable development activities which often ignore the poverty of many of our people and the decline in services, both rural and urban.

Few government documents or statements refer to the *National Sustainable Development Strategy*, though occasionally sustainable development is referred to in lieu of social and economic development. DEC documents do refer to ‘environmentally sustainable development’ (Department of Environment and Conservation 1996a, 1996b), and the Department of National Planning does refer to ‘integral human development and sustainable livelihoods’ (Office of National Planning 1999). However, even a consultancy report on sustainable development funded by UNDP at that time failed to mention the agreed strategy (McMaster personal communication 1999). Notably, the Department of Mining does have a sustainability policy (Banks 2001; Filer 2002). Yet the 2005 Medium Term Development Strategy 2005–2010 (MTDS) scantily or only indirectly refers to

sustainability or sustainable development (Department of National Planning and Rural Development 2004).

Quite often it has been hoped that the *National Sustainable Development Strategy* would be resurrected. In preparation for the ten-year review of Agenda 21, the United Nations (UNDP) in Papua New Guinea advertised the position of a project coordinator (*Papua New Guinea Post-Courier* 25 January 2002) to manage a secretariat for Papua New Guinea's preparation for the World Summit on Sustainable Development ('Rio + 10'), to act as the secretary for the Papua New Guinea national steering committee and to prepare the national assessment report. Such a national review was required to document Papua New Guinea's progress in implementing Agenda 21. The report was prepared by a team from UPNG (University of Papua New Guinea 2002), but it was never accepted, nor presented by the government at Johannesburg, due to its critical nature. However Papua New Guinea did submit its own report in 2004 to the Barbados Programme of Action for the Sustainable Development of Small Island Developing Countries. (Government of Papua New Guinea 2004). In early 2005 the government of Papua New Guinea advertised for a position of coordinator for Goal 7 of the Millennium Development Goals.

DEC Environment Review

Despite the package of enlightened legislation passed between 1978 and the early 1980s, its implementation has been very weak, enforcement poor and in most areas ineffective. The *Environmental Planning Act, 1978* required all development projects which might have a significant environmental impact to comply with environmental impact assessment (EIA) procedures, including the submission of an environmental impact statement (EIS) or plan. This has not been strictly followed. Approvals to proceed with development required approval of the EIS and of a subsequent environmental management and monitoring plan (EMMP); these working documents were intended to safeguard the project through its life and to ensure environmental best practice. The system needed effective enforcement, which was seldom catered for within DEC, which lacked an adequate budget and manpower support. This requirement for an EIA was followed in the mining sector, only in the last fifteen years in forestry, and in recent years to a lesser extent in agricultural, fisheries and infrastructural projects and a few other projects. In infrastructure projects, especially roads and bridges, EIAs were undertaken as a donor requirement and DEC and line departments such as the Department of Works and Implementation were targeted for staff training. But the process has been cumbersome and often ineffective due to limited funding and human resources. Some proponents, particularly in the agriculture and forestry sectors, either ignored the whole process or paid scant attention to it.

In 1978 parliament introduced the *Environmental Contaminants Act*, which aimed to reduce pollution and to control the use of hazardous chemicals such as pesticides and industrial chemicals. By the mid 1990s regulations existed for pesticides but not for other hazardous chemicals, and pollutants were not controlled except through legislation concerning discharges into waterways. Guidelines were introduced in the early 1990s for registration and labelling. The latter are ignored fifteen years later. All importers, distributors and users are required to be familiar with the FAO *Pesticide Code* (Food and Agricultural Organization 2003) but most are unaware of this code of best practice.

After twenty years there was general agreement that environmental management was not very effective.

Consequently, in 1995 DEC (which was responsible for implementation of the legislation), with the assistance of AusAID, embarked on a review of its mandate and mission and proposed a totally new environmental regulation framework and new strategic directions. The department made public its proposals and requested comment.

In a publication entitled *Strategic Directions for 1996–1998* (Department of Environment and Conservation 1996a), DEC stated as one of its key objectives:

To develop and maintain a regulatory framework to safeguard the air, water, land, wildlife and marine environment by ensuring effective management of industrial and domestic wastes, hazardous chemicals and unsustainable use of resources.

Another DEC publication, released in March 1996 (Department of Environment and Conservation 1996b, 5–6), outlined a proposed new regulatory framework for environmental protection. This is outlined in more detail below. The new regulatory framework was said to be based on an number of important principles, namely: certainty and integrity, transparency, consultation and communication, flexibility and practicality, cost-effectiveness and efficiency, 'polluter pays', the 'precautionary principle', and integration of economic and environmental decision making.

In 2000, a new *Environment Act* was passed, consolidating three existing acts (Environmental Planning, Environmental Contaminants, and Water Resources), with the intention of providing a more efficient assessment, approval and monitoring system. The legislation became effective in January 2004.

The new regulatory framework distinguishes three different levels or streams of regulation, depending on the magnitude and significance of the activity (Department of Environment and Conservation 1996b; Department of Environment and Conservation 2004a):

Level 1 activities are those that require a minimum level of environmental protection. Regulation of such activities is based on standards, codes and regulations which set benchmarks for environmentally acceptable activities. For example, maximum discharge levels, ambient quality standards for receiving environment, codes of practice, guidelines for best/acceptable practice. In cases of non-compliance, environmental protection orders, clean-up orders and emergency directions may be issued.

Level 2 activities are those that require a framework of environmental approvals allowing for water discharge permits, or licensing for importation, sale and use of environmental contaminants and for site-specific environmental conditions to be set for these activities which have more significant potential impacts. Level 2 activities are regulated by means of conditions in environmental permits, environmental improvement plans and environmental management programs.

Level 3 activities cover those with the potential of major environmental impact and are projects of national significance or of a large scale. Such activities are subject to a process of public and detailed considerations of environmental implication through the EIA process.

It is expected that most forms of environmental management will focus on Level 1 and Level 2 activities, with hazardous environmental contaminants and important pollutants subject to Level 2 regulatory mechanisms, and only Level 3 activities requiring an EIA (See Figures 10.1 and 10.2.).

Associated with implementation of the new act, DEC introduced a series of important new regulations (see, for example, Department of Environment and Conservation 2004b, 2004c, 2004d) and an operational manual for its staff (Department of Environment and Conservation 2004a). Some of these regulations/guidelines now need review and updating. Also, a number of codes of practice are now in place (covering solid waste/landfills, fuel storage, motor mechanics workshops, oil palm operations and environmental guidelines for roads and bridges, as well as a Logging *Code of Practice* for forestry (Department of Environment and Conservation and National Forest Authority 1995)). The effectiveness of some of these codes of practice is open to question and a number are proponent-driven, with an understaffed DEC. A review of the overall effectiveness of the new act and its implementation is urgently needed.

During a long process of self-review and AusAID 'DEC strengthening' (AusAID 1999), DEC received substantial funding cuts; many staff were made redundant and the department was downgraded to an office. At the end of 2001 it was upgraded again to department status. However, four years after this long and much needed review, DEC seems to still lack direction and financial capacity; it

suffers from a scarcity of personnel skills and experience, and the decision-making process lacks accountability and is not seen as sufficiently transparent either by officers within the department or by the community. Policy is not implemented or enforced effectively.

A useful review of priority environmental concerns in Papua New Guinea was done by Nicholls for the International Waters Programme (Nicholls 2002). He identified ten areas: increasing land degradation; increasing environmental risk from hazardous materials; declining water quality in rivers and coastal areas; disturbed or unpredictable hydrological regimes; loss of critical habitats and biodiversity; declining coastal and marine resources; inadequate or unsatisfactory water supplies; declining air quality in urban area; noise pollution; and climate change. Given poor environmental governance in Papua New Guinea and people's lack of awareness about and/or poor attitudes towards the environment the few efforts to address these issues have had little success and certainly have not been sustained.

DEC from 2004 to 2006 initiated a much-needed review of chemical management in Papua New Guinea. This followed Mowbray's review of chemical management (*National Profile on Chemical Management*) (Mowbray 2000). With financial assistance from UNEP and funding from the Global Environment Facility (GEF) through the Stockholm Convention, the Papua New Guinea POPs (Persistent Organic Pollutants) Project reviewed the use of DDT and PCBs, the production of furans and dioxins, and the use of chemicals in agriculture, forestry and industry; it also carried out reviews of legislation and of education and training, conducted awareness activities on chemicals, and updated the 2000 National Profile (Mowbray 2005). An action plan was prepared to be submitted to the Stockholm Convention Conference of Parties in 2006 (Department of Environment and Conservation 2006). This was done jointly with several government departments and non-government persons.

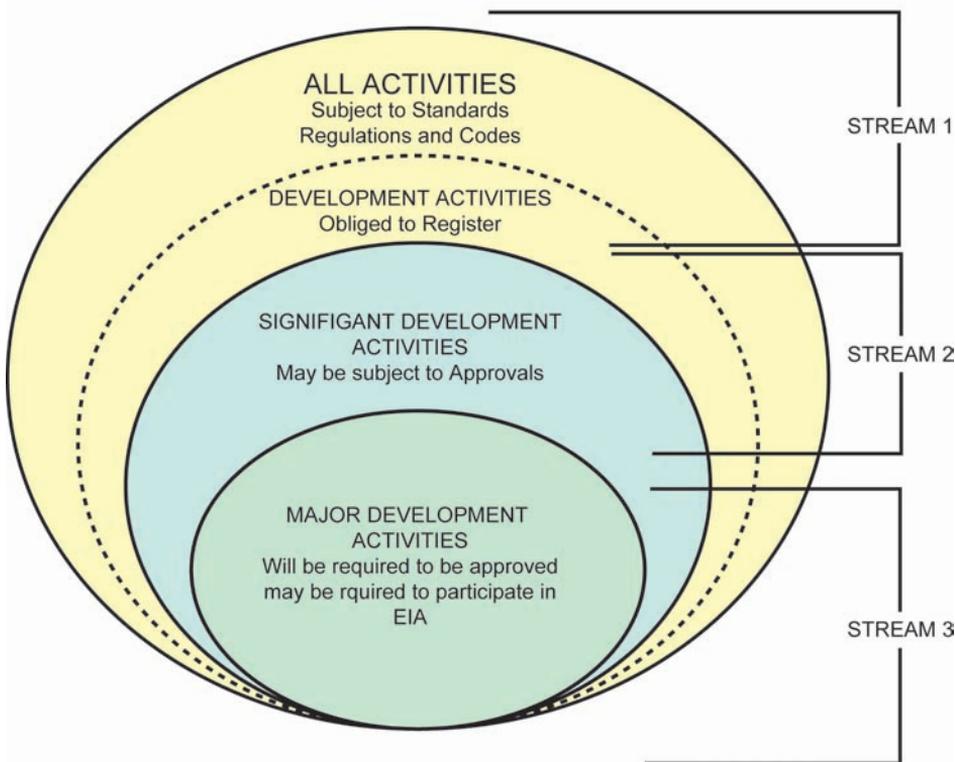
There are many problems facing DEC in effectively carrying out its mission. These include mobility of staff at all levels, lack of job security, continually changing organizational structures, office machines and telephones that do not work, and absenteeism. Many of these and other problems were noted in a *National Profile on Chemical Management*, in which forty-three recommendations were made to improve chemical management in Papua New Guinea (Mowbray 2000). These points were reiterated in the 2004 update of the National Profile (Mowbray 2005). DEC and provincial governments must be given the capacity to implement the new environmental regulatory framework, and DEC needs the firm support and political will of Papua New Guinea's leaders.

Despite the new act, Sivusia-Joyce (2005) notes in a brief review that DEC has been under-resourced and deprived of its powers resulting in neglect of environmental regulation, monitoring, evaluation and compliance issues. Few

if any prosecutions have been made for causing environmental harm. There are many continuing breaches of the pesticides regulations — both unregistered pesticides being imported and sold and Papua New Guinea labelling guidelines being ignored. Chemicals continue to be used unsafely due to lack of adequate chemical regulations, the absence of a licensing system for high-risk users (such as pest-control and timber treatment operations) and inadequate occupational health and safety standards and practices. Where DEC has requested information from companies on discharges and emissions, responses have not been forthcoming.

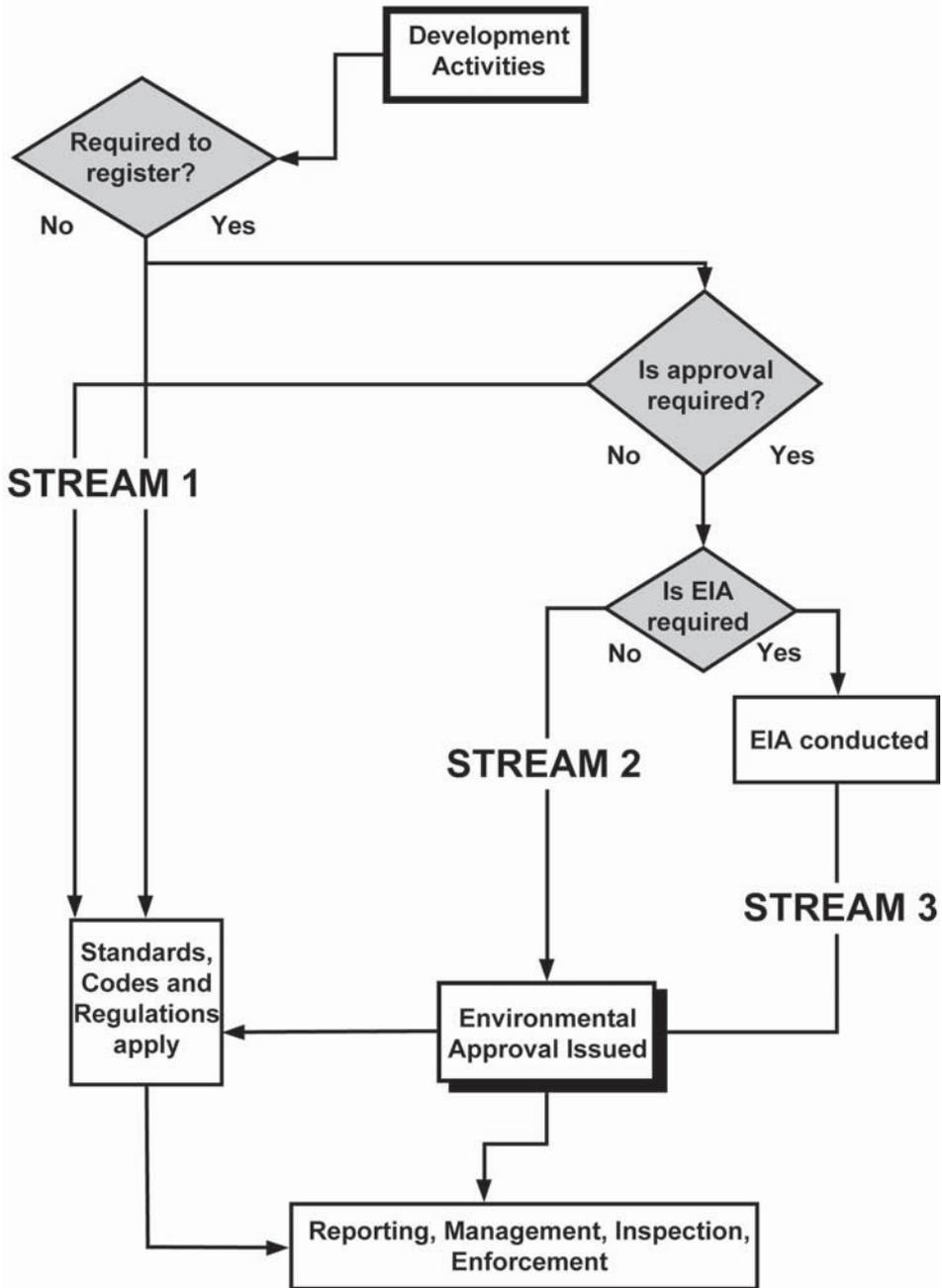
One added constraint in Papua New Guinea is that there are few ‘environment-orientated’ NGOs in Papua New Guinea; most are active in conservation and forestry-related activities. Hence there is no ‘watchdog’ organization monitoring or auditing what DEC does and does not do on environmental issues. Likewise, some companies can ignore the law, or requests from DEC, and not be answerable to anyone.

Figure 10.1 PNG’s Different Regulatory Streams



Source: Department of Environment and Conservation (1996b)

Figure 10.2 PNG's Environment Regulatory Framework under the Environment Act



Source: Department of Environment and Conservation (1996b)

DEC Conservation Review

It is generally accepted that conservation policy in Papua New Guinea has not worked for over two decades. Three outdated conservation acts — the *Conservation Area, National Parks, and Fauna (Protection and Control)* acts — also need to be replaced (Unisearch PNG 1992).

Unfortunately, most responsibility for conservation on the ground seems to have been passed to provincial and local-level governments, who have neither the capacity nor funds to do very much. Much of the work in conservation is now done by NGOs working with local communities. But a new legislative framework needs to be developed, taking into account wildlife management areas (currently the main type of protected area), integrated conservation and development (ICAD) (Saulei and Ellis 1997) and conservation/protected areas, and biodiversity conservation. This will be difficult in a country with clan-based land tenure. There are many competing forms of land use, and trade-offs will be necessary. Conservation of marine areas is also new to Papua New Guinea and lacks appropriate legislation.

Various reviews of conservation and conservation policy were conducted in the 1990s by DEC, the World Wide Fund for Nature (WWF) and UNDP, covering protected area management rehabilitation (WWF and DEC 1992); conservation strengthening (WWF and DEC 1993); and the Conservation Resource Centre/ICADs (Sekhran and Millar 1994; Ellis 1997; McCallum and Sekhran 1997; Saulei and Ellis 1997; Van Heldon 1998). National parks as such are probably irrelevant in the Papua New Guinea land tenure context, but wildlife management areas (WMAs), ICAD projects, and new types of multipurpose protected marine areas need to be established. Furthermore, if conservation management is to work, it needs to involve people at the provincial level as well as the national government and local communities and landowners, and the plethora of local and overseas NGOs.

Over recent years the World Bank and AusAID have, intermittently, conducted feasibility studies of sustainable forest management and conservation (including a component on conservation planning and management (AusAID 2000; World Bank 2000), and a study for a *Biodiversity Strategy and Action Plan* (World Bank 1998)). In 2002 proposals were invited for provision of consulting services to assist in the preparation of a National Biodiversity Strategy, Action Plan and National Report, with funding from the Global Environment Fund (GEF). Nothing happened until 2005, when DEC began holding consultations to develop a *National Biodiversity Strategy and Action Plan* and an important up-to-date review and proposal was prepared by Kwa (Kwa 2005) and discussed in a stakeholder workshop in Port Moresby in September 2005.

Through 1997–2000 the Papua New Guinea BioRap Project conducted a national biodiversity assessment and developed computer models useful for

biodiversity planning in Papua New Guinea (Nix *et al.* 2000). Such models incorporated opportunity costs associated with agriculture and forestry, conservation commitments, and areas to be excluded because of high land-use and population density, and developed a set of conservation priority areas. Progress in using these models and incorporating environmentally sensitive and vulnerable areas has been ongoing but slow. Meanwhile a small number of new conservation areas has been gazetted under existing legislation.

Important reviews of conservation law have been conducted by Kwa (2004) and Whimp (1995, 1997). An ongoing review of conservation areas (known as the RAPPAM review) is presently being coordinated by WWF (Yamuna personal communication 2005). WWF has also initiated a local marine management area (LMMA) (Samuel personal communication 2005) and a marine 'ecoregions' project covering the Bismarck and Solomon Seas.

Similarly, with MacArthur Foundation funding, WWF, the Nature Conservancy and UPNG have been jointly developing a conservation area planning and capacity building training program entitled *Strengthening Conservation Capacity within PNG*. This project entails the production of training modules and postgraduate short courses, and certificate and diploma courses in conservation. A 'conservation leadership initiative' and training program, involving training in the teaching of conservation and environment curricula, has also been introduced by the University of Goroka, jointly with an NGO, Research and Conservation Foundation (Tiu personal communication 2005).

The development of a Conservation Trust Fund is another positive development supplementing government action. The *Mama Graun* Trust Fund has been established to support biodiversity conservation and related sustainable development initiatives. Its overall goal is stated as 'providing resource owners and managers with a long term source of funding', by attracting donor support for conservation in Papua New Guinea. More specific objectives include: to integrate conservation of biodiversity into sustainable development programs and activities; to conserve — and when necessary restore — priority natural biodiversity resource areas; to strengthen the capacity of resource owners to conserve and sustainably manage their own biological resources; and to enhance the knowledge and information base needed to monitor and achieve sustainable resource management and biodiversity conservation (Papua New Guinea Conservation Trust Fund Limited 2000; The Nature Conservancy and Papua New Guinea Conservation Trust Fund 1999). Unfortunately with the abandoning of the World Bank based National Forestry and Conservation Project, the implementation of the Trust Fund has been put on hold, although the Nature Conservancy hopes to resurrect it in the near future.

DEC conservation staff numbers have also been severely reduced, with many experienced staff leaving and joining NGOs. This severely limits DEC's capacity

in relation to conservation, and greater responsibility therefore rests with provincial and local-level governments, and especially with NGOs and communities.

There are many conservation NGOs in Papua New Guinea, actively involved in education and awareness, in ICAD projects and assisting in community support and legal assistance. Some provide legal services to communities where environmental damage occurs or human rights are infringed. They are especially vocal on forestry activities and conservation matters. Though they tend not to be very critical of government, they provide crucial support both for communities on the one hand and for government on the other, especially DEC and the National Forest Authority.

An added complication for environment and conservation policy is the post-1995 provincial and local-level government reforms. These reforms have transferred many of the responsibilities of the national government to the provinces without concomitant financial and manpower support. This includes responsibilities for environmental management and conservation, and environmental governance. The present lack of capacity in the provinces for environmental and conservation management is a major problem.

Looking beyond 2006

A number of important processes occurring internationally and nationally are impinging on how conservation and biodiversity strategies, environmental protection, and sustainable development can be implemented in Papua New Guinea. These include globalization, democratization, deregulation, privatization, downsizing of government, cost-recovery, corruption and poor environmental governance, and insufficient training and capacity building. These processes will impact on the way things are done. They will require us to think of new ways of doing things in environmental management. A potentially important contribution to such a discussion is a review of environmental governance in Papua New Guinea (with a focus on multilateral environmental agreements) published by the United Nations University as part of their Inter-linkages Programme (Piest and Velasquez 2003).

But while new approaches to environmental protection and conservation management must be considered, we need first to take into account some key constraints affecting environment and conservation strategies in Papua New Guinea. We must acknowledge the weak influence of DEC; the lack of coordination between departments; the limited capacity but increasing strength and potential of environmental NGOs; the declining capacity of universities and training institutions; the dominance and territoriality of sectoral departments; the prevalent ideologies of development; community attitudes and pragmatism; and the move to decentralize powers and activities without concomitant support.

We must also recognize that all the key players in environmental protection and conservation, be they national or provincial governments, aid donors, development facilitators, international NGOs, local NGOs or communities, have different agendas (for example, see Martin 1999) and different expectations and ways of measuring successful outcomes of environment and conservation initiatives.

The capacity of agencies at the provincial and local levels to handle important environmental issues, for example in relation to forestry projects, must be given high priority by the national government and donors; capacity building at the provincial and local levels in environmental management and conservation is essential. DEC must be made relevant, and universities must play a larger role, especially in training but also in research, consultancy and outreach activities. Yet both DEC and universities have had their funding seriously cut and staff morale in both has been undermined by government policies and lack of sufficient donor funding. Insufficient emphasis has been placed on training in environmental management and conservation to meet the changing needs across the country.

A number of questions must be asked:

- How can the influence of DEC both in government and in the community be strengthened? Is the most effective institutional arrangement to have environment policy implementation the responsibility of an independent environmental ministry? From experience elsewhere (see Ebisemiju 1993), we would suggest it is, but what are the options and are there new ways DEC might do things?
- How do we change the dominance and territoriality of sectoral departments? Unless the relationships between DEC and key departments in areas such as finance, planning, mining, forestry and agriculture change, environment and conservation policies will remain ineffective.
- How can coordination between departments be improved to achieve complementary objectives, policies and programs, and resolve disagreements in policy?
- How can environmental NGOs more effectively sell their vision of conservation and development?
- Can we ensure the benefits of aid to Papua New Guinea do not stop when the donor leaves? Donor agencies need to put greater emphasis on ensuring sufficient capacity building and on linking up with local training institutions from the beginning of a project.
- Can we ensure the donor is 'on tap, not on top' (Carew-Reid *et al.* 1994)? The recipients, not the donor, must set the agenda and timeframe.
- How do we deal with decentralization of powers and activities without concomitant support?

- How do we cope with ideologies of (economic) development which are constantly changing to meet the latest fashion (ESD, poverty alleviation, capacity building, good governance, and so on)?
- Which is more important — natural, human, man-made or social capital? Do we accept weak or strong sustainability? Priority is still given to mining and forestry, which can provide visible financial returns, but are weak on sustainability.
- Environment and conservation, and indeed ecologically sustainable development, are not seriously considered by most decision makers. Why?
- How do we respond to prevalent community attitudes? Most local communities are pragmatic and understandably will accept the best 'development package' offered, since government services do not meet their needs. How can we convince local communities to accept development projects that can deliver longer-term benefits and sustainability rather than promises of quick returns? How do we engender 'conservation conviction'?
- How do we improve communication between the various players and stakeholders in environmental protection and conservation, particularly local communities, given our different, often conflicting, backgrounds, visions and world views?
- How do we ensure that the recent commitment to environmental sustainability (Goal 7 of Millennium Development Goals) together with the National Sustainable Development Strategy is integrated into the next Medium Term Development Strategy, and effected?

Various authors have repeatedly stressed that DEC lacks influence and bargaining power (for example, see Filer and Sekhran 1998). Indeed, government generally will lack legitimacy until attitudes towards the right of the state to control people's activities change (Whimp 1997). It has even been suggested that a moratorium on forest activities might achieve more than piecemeal and ineffective conservation policies. The 1998 downgrading of the DEC to an office (OEC) reflected the lack of government commitment to environment and conservation and had a dramatic effect on the image of environment and conservation among the Papua New Guinea community and internationally, as well as on staff morale. Although the OEC was upgraded to department status again in 2001, some people have suggested that it has lost its vision and that the underlying principles stated in the 1996 discussion paper (Department of Environment and Conservation 1996b) need to be revived.

There needs to be more meaningful stakeholder participation and consultation and public awareness in environment and conservation policy formation. Perhaps new forms of consultation and conflict resolution in environmental and natural resource management are required, drawing on traditional cultural and social mechanisms. Universities and other training institutions, whose credibility and

integrity have been questioned in recent years, must assist in training and creating awareness in the community of environment, conservation and development issues. Distance education and postgraduate courses in environmental sciences, biology, environmental management, conservation and community development need to be expanded, despite decreasing staff and financial resources.

The challenge is to spread environmental awareness and conviction, and to get environmental governance right, by determining the right mix of responsibilities for government, the community, NGOs, and the private sector, within the context of a policy of ecologically sustainable development.

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Endnotes

¹ Now known as the Department of National Planning and Monitoring, originally the National Planning Office.

² Including the Rio Declaration on Environment and Development, Agenda 21, the Framework Convention on Climate Change, the Convention on Biological Diversity, and the Statement on Forest Principles (Quarrie 1992).