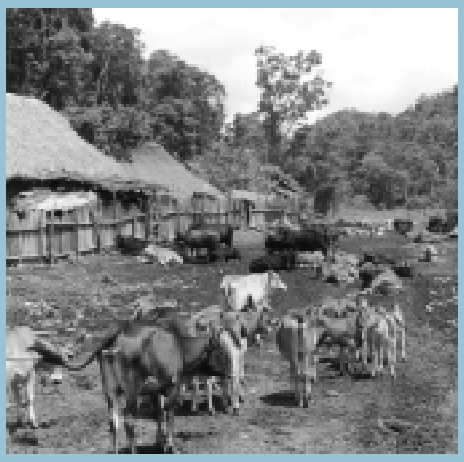
PART ONE

The Status of Biodiversity in Asia



Chapter 1. Analysis of lessons

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SUMMARY

All 15 Asian countries reviewed in this book are at some stage of preparing or implementing a national biodiversity strategy and action plan. The process has raised awareness of biodiversity status and the policy options for its management. It has led to major expansion of protected area networks and of biodiversity information systems. Yet, the process is not affecting the main forces degrading biodiversity resources. Asian NBSAPs are not addressing the full range of issues in the Convention on Biodiversity; the CBD objectives of sustainable use and benefit sharing, for example, have been largely ignored. The experience suggests that to have greater influence biodiversity planning needs to be viewed more as a political and economic process in which hard decisions are made on resource allocation and use. Four political trends in Asia are promoted in biodiversity planning: devolution, regionalisation, community management and accountability. This notable political reform has positive implications for better management of biodiversity. A critical barrier to progress, however, is the failure of economic planners to recognise the full value of biodiversity. The NBSAP process in Asian countries should be guided by the CBD in its coverage. It should give greater emphasis to assessing the economic costs of biodiversity loss and the benefits biodiversity provides; it should link biodiversity performance to government budgets and shifting biodiversity planning to sectors, regions and local areas.

The causes of Asia's decline in biodiversity

Biodiversity is the total variety of genetic strains, species and ecosystems on the planet. Biodiversity planning in the countries of Asia is an important part of their response to what is threatening to become a crisis much more serious and profound than the recent economic collapse.

The natural systems of South and South East Asia are in accelerating decline. Evidence from the 15 countries of the region covered in this book shows that all forms of biodiversity — ecosystems, species and genetic resources — are

being lost at unprecedented rates. It is not possible to assess rates of species loss in absolute terms; fewer than 10 per cent have been given scientific names. But rates of degradation in land, fresh water and marine habitats are a reflection of species loss. Asia will lose more than half of its remaining land and water habitats over the next century (a third over the next few decades), leading to impoverished and unstable natural, social and economic systems.[1]

The links between biodiversity and economic welfare

A major obstacle to biodiversity planning and conservation is the failure to link biodiversity loss with the economy in the minds and practices of policy-makers. In a climate of political and economic change, environmental and natural resource maintenance is losing out to more immediate economic concerns. In particular, the opening of economic markets and the formation of larger business structures are leading to changing patterns of resource ownership and control and a greater distancing of the costs relating to biodiversity use from the benefits.

Governments and local communities are taking action to reverse these negative trends, usually as the economic implications of biodiversity loss become more clear. Most biodiversity benefits are harvested free without ownership or responsibility and so the restraining force of conservation through economic self-interest has not come into play. In cases where bold political decisions have been made to halt degradation, market forces have led to increased exploitation elsewhere in the region. The 1996 ban on logging in natural forest in Thailand and Vietnam, for example, merely shifted the pressure to the forests of neighbouring Cambodia and Lao PDR.

More than ever before, Asian societies view themselves as “economies” governed by rapidly evolving economic rules and relationships, rather than “living systems” governed by ecological principles. Asia is regarded as a region of cheap labour, cheap natural resources, cheap production and high profit (at least for some). But that performance comes at very high environmental cost. Although biodiversity, and the products and services which stem from it, has fuelled growth, its loss, continuing unaccounted for since the 1950s, has escalated during the last ten years of the 20th century. Its associated but often hidden economic costs are mounting in tandem.

We only have glimpses of what those losses mean in dollars. The cost of natural disasters caused by human-induced environmental changes, for example, was four times that of previous decades. The 1997–98 Indonesian forest fires cost the country around US$10 billion from the resultant breakdown of

transportation, destruction of crops and timber, decline in tourism, health care, and other impacts[2]. The estimate would be much higher if it accounted for the impact in all affected countries. In Australia, ecosystem degradation costs about US$500 billion annually[3] due to reduced production and ongoing nutrient losses.[4] The Economic and Social Commission for Asia and the Pacific (ESCAP) reports that annual losses due to land degradation and desertification are US$10 billion in South Asia, and US$ 700 million in North East Asia. In Central Asian countries the losses amount to three per cent of GDP. Almost 500 million Asians have been affected, directly or indirectly, by losses in ecosystem services.[5]

John MacKinnon's review of the status of biodiversity in Asia in Chapter 2 looks at the other side of the coin by providing figures on biodiversity worth in terms of products and services. But our knowledge and tools for feeding this information into the market are all too limited (for reasons explained in Lucy Emerton's chapter on the economics of biodiversity); this is the principal barrier to progress in biodiversity conservation. It is also the principal barrier to Asian countries' building sustainable economies.

Evidence of the direct link between the maintenance of biodiversity and healthy economies is found in all Asian countries. In Vietnam, for example, agriculture, forestry and fisheries account for 26 per cent of total GDP and 70 per cent of total employment. But even though these sectors underpin almost all rural economic activity, improper natural resource use and management patterns threaten Vietnam's continued economic viability. Environmental degradation from unsustainable use is undermining the capacity of these sectors to support current demand, let alone the expected increase (UNDP/MPI 1999).

Integrated planning and management systems are more common in sectors where negative environmental impacts are felt directly in terms of prices and incomes and affect daily subsistence. There was a response from governments to dramatic reductions in crop yields due to pests; integrated pest management is now widely practised. The collapse of forestry and fisheries stocks has not led to the same concerted action, however. The economic impacts of mismanagement in those sectors are usually less immediate, more diffuse and often remote from major population centres, markets and policy-makers.

Box 1. Causes of biodiversity loss

The underlying cause of biodiversity loss is the failure of policy and budgets to recognise and reflect the fundamental relationship between economic and biodiversity well-being. There are five related causes of loss, all associated with human economic processes of production and consumption:

1. **Over-harvesting of animals and plants.**
2. **Destruction of habitat such as forests, wetlands and coral reefs, and their replacement by high-yielding aquaculture, agricultural and forestry monocultures.**
3. **Fragmentation, simplification and impoverishment of remaining ecosystems leading to "islands" of habitat in a sea of disturbance (the smaller the island, the more vulnerable to extinction are its species)**
4. **Invasive alien species introduced into natural systems (accidentally or intentionally).**
5. **Pollution of water, soil and air.**

Asia's high population growth and density are influencing these causes in complex ways.

Biodiversity planning as a political process

Benefits of biodiversity planning

There are many reasons why good planning is critical to biodiversity conservation and why conservation will not succeed without it. Most benefits do not relate directly to conservation; some have to do with bringing a framework of discipline to government and community action; other, more fundamental benefits relate to changing and influencing the way decisions are made and resources are allocated.

The more immediate and pragmatic response to the question "why plan for biodiversity conservation?" points to the following benefits:

- to expose and explain natural resource problems confronting a society;
- to provide credible policy analysis relating to those problems (including the "hard choices");
- to define the detailed actions required to address those problems;
- to set priorities for action in situations of limited budgets and human resources;

- to overcome isolation and create working links between the main actors;
- to show how policies in one sector can affect biodiversity being managed by another sector;
- to link international and national and local commitments, resources, information and expertise, and, most important;
- to involve affected institutions and people in shaping their future.

Biodiversity planning seeks to optimise these values. They are not particularly radical and can be viewed as basic requirements for any effective administration and planning process. China and Vietnam, both Communist countries, have embraced biodiversity planning with the same enthusiasm as India and the Philippines, which are democracies.

When these prosaic values are combined with the principles for conserving biodiversity the planning process has the potential to promote favourable political, social and economic change (Box 2).

Box 2. Ten principles for conserving biodiversity

The Global Biodiversity Strategy sets out ten principles to guide planning and action:

1. **Every form of life is unique, and warrants respect from humanity.**
2. **Biodiversity conservation is an investment that yields substantial local, national, and global benefits.**
3. **The cost and benefits of biodiversity conservation should be shared more equitably among nations and among people within nations.**
4. **As part of the larger effort to achieve sustainable development, conserving biodiversity requires fundamental changes in patterns and practices of economic development worldwide.**
5. **Increased funding for biodiversity conservation will not, by itself, slow biodiversity loss. Policy and institutional reforms are needed to create the conditions in which increased funding can be effective.**
6. **Priorities for biodiversity conservation differ when viewed from local, national, and global perspectives: all are legitimate, and should be taken into account.**
7. **Biodiversity conservation can be sustained only if public awareness and concern are substantially heightened, and if policy-makers have access to reliable information upon which to base policy choices.**

8. **Action to conserve biodiversity must be planned and implemented at a scale determined by ecological and social criteria. The focus of activity must be where people live and work, as well as in protected areas.**
9. **Cultural diversity is closely linked to biodiversity. Humanity's collective knowledge of biodiversity and its use and management rests in cultural diversity; conversely, conserving biodiversity often helps strengthen cultural integrity and values.**
10. **Increased public participation, respect for basic human rights, improved popular access to education and information and greater institutional accountability are essential elements of biodiversity conservation. (WRI, IUCN and UNEP 1992).**

As we see from the country experiences described in this book, when the biodiversity planning process operates according to these values and principles, it nurtures traits associated with societies that are open and democratic in nature. This influence on political evolution is not unique to biodiversity planning. It can be observed in other forms of strategies which are moving societies towards more sustainable patterns of development and resource use. The political implications of "conservation" strategies were evident in the early to mid-1980s with the first wave of National Conservation Strategies, called for in the 1980 World Conservation Strategy (IUCN, WWF and UNEP 1980). For some countries, such as Pakistan, Nepal and the Philippines, an NCS added significant momentum to broader institutional and political reform. Other conservation strategies have had less impact, most often because they lacked many of the critical ingredients for success spelled out later in this chapter and in more detail throughout the book.

Biodiversity planners must be sensitive to the political dimension of their work. The planning process itself can be shaped around those forces which best serve conservation. For instance, four democratic trends promoted in biodiversity planning in Asia are devolution, regionalisation, community management and accountability. One should not be left with the impression that this is a systematic and well structured movement; it is not. The relationship of these political trends to the use of biodiversity resources is complex and often indirect. But biodiversity planning processes are gradually making these approaches more explicit.

Devolution

Probably the most powerful and consistent message from NBSAP is the need for devolution (the transfer of decision-making authority to levels of government closer to the use and management of biodiversity resources). In Europe, this is called the "subsidiary principle": essentially, those closest to the effects of decisions should make them.

Box 3. Biodiversity planning as a political process

- **Conservation science may provide the basic parameters of biodiversity planning, but planning is foremost a political process driven by economic and social factors.**
- **Decentralisation of responsibility without devolution of authority and accountability is not good for biodiversity conservation.**
- **Political instability is not good for biodiversity conservation, and when it has occurred, in countries such as Indonesia and the Philippines, it has led to increased biodiversity losses.**
- **The role and potential influence of local communities in biodiversity conservation has often been overemphasised while major economic forces shaping biodiversity use and degradation have not been effectively engaged in the process.**
- **Community management of biological resources has been shown to be positive for biodiversity conservation where associated tenure arrangements and user rights are well defined and recognised.**

Devolution in many forms is shifting attention to local levels in all the countries reviewed. This is a significant political trend. Indonesia, the Philippines, China, Vietnam, India, Pakistan and Australia have running NBSAP processes which have a strong influence on the overall shift in development and biodiversity planning from national to local levels of government. In some countries, such as Pakistan, Australia and Malaysia, state or provincial governments already have primary control over the management of natural resources.

Over the past ten years, Vietnam, which has a constitution recognising only national-level government, the party has embraced "doi moi" or a process of innovation. Three key areas of government reform affecting planning are democratisation, decentralisation and the rule of law. These principles are also promoted in the Vietnamese BAP (as described in Chapter 11 by Sulma Warne and Tran Lien Phong) and each of them is an essential element of devolution. Political reforms are shaping the way that biodiversity resources are managed.

Box 4. Devolution in Vietnam

In Vietnam the term "democratisation" refers to more transparent and open government; easier access to information, for example, through State of Environment Reports, and community participation in planning processes. The 1998 Decree and Regulation on Democracy in Communes[6], for example, requires local authorities to do the following:

a) Inform local people about policies and laws of the state, long-term and annual socio-economic plans and land-use plans for the area, and provide information on local state budgets and financing of other programs undertaken by the commune.

b) Give people the right to be involved in debate and decision-making and in monitoring and controlling the work of the Commune Peoples' Committee.

Over time, policies such as these can have a very significant impact on the way natural resources are used and managed.

Similarly, through its policy of "decentralisation", the Party has given more discretion over budgets and planning to local Peoples Committees. It is making changes in central government to focus on macro economic management and broad policy, and has delegated detailed planning and management responsibilities to sectoral and provincial departments. This devolving of authority has required clearer budget definition. For the first time, for example, allocations are made for environmental protection expenditure in annual budgets of line ministries.[7]

Finally, the rule of law has led to legislation to clarify tenure and land-use rights; delegate authority for detailed planning and investment decisions; introduce integrated planning for natural resource regions; and develop a system of conflict resolution through administrative and economic courts.[8]

All these reforms reinforce and are reinforced by the biodiversity planning process. Similar pictures could be painted for most other countries of Asia.

Like all processes that seek to decentralise and broaden resource management responsibilities, devolution has inherent dangers. If it proceeds without commensurate capacity to take on new and expanded roles, without effective systems of monitoring and accountability, and without real sharing of authority, then it can lead to uncontrolled and wholesale exploitation of biodiversity. This has been the case in Indonesia over the past three years of active decentralisation. Illegal logging is rampant even within protected areas.

Regionalisation

A number of innovative approaches to biodiversity planning at the regional level are being undertaken in Asia (the benefits of the regional planning approach in NBSAPs are analysed later in this chapter). Their primary objective is to plan and manage biodiversity use according to natural rather than political boundaries. Regional biodiversity planning arises from an appreciation of landscapes. It provides those communities involved with a greater sense of place — a sense, to use an Australian Aboriginal saying, of belonging to "my country".

Making biodiversity regions or bioregions a focus of planning and involvement for those working and living in the area has continuing political effects, in the same way that devolution does. Bioregions are defined as areas large enough that the habitats and ecosystem functions within them can remain viable in the long term, if they are managed appropriately. People still tend to think of their "country" in terms of natural systems and characteristics, even in a world where the notion of "community" can have more than a geographic association. This link between bioregions and a sense of place is very important because it brings with it the potential local constituency for wise use of biodiversity and stewardship.

Bioregions can be defined for management purposes at the international level (the role of NBSAPs in international bioregions is also discussed later in the chapter). The Mekong River Commission and IUCN are mounting a regional wetland biodiversity program based on the imperatives of managing the Mekong as an international natural system, not just as six national economic and political entities.

Regions at the subnational level are widely acknowledged in Asia, but few countries have regional political structures or formally recognised regions as a level of government. This is changing, however. NBSAPs in Asia promote regions at a time when the underlying natural resource management (and thus economic) reasons for doing so are becoming evident. Many countries are now preparing economic development plans for regions of various kinds, most defined by natural system boundaries (such as river basins and mountain areas) but modified by administrative realities. Some have established regional authorities for this purpose. NBSAPs are encouraging this concept of regions and need to incorporate it into the planning process.

Community management

Community control and management of local natural resources has become a fundamental principle of biodiversity planning in Asia. It is a principle that

steers both process and policies; inevitably, it has a strong influence on political evolution. Governments are learning that they do not have the resources or capacity to manage natural systems as well as those who use them day-to-day. But the potential of community management can only be achieved if rights and responsibilities come with use. The experience in Nepal and India, for example, shows that communities or resource users who own or have well-defined rights of access and tenure over biodiversity resources are likely to sustain them. In these cases, biodiversity conservation is driven by collective economic self-interest.

Of course, communities under environmental and economic stress can, and do, knowingly act against their long-term economic interests. Also, powerful individuals or groups who control a resource can over-exploit it for short-term gain in the knowledge that they can move on to other resources later. Biodiversity planning engages people in seeking strategies to expose and confront situations of apparent conflict between conservation and development. This is why community management, which is a central theme in all Asian NBSAPs, will not take effect unless it is accompanied by a commitment to equity, benefit-sharing and wide participation in the planning process. Each of those attributes, promoted through NBSAPs, has deep political implications for the way a society functions.

The NBSAP lessons in this book suggest that community management cannot work for conservation unless there is a transfer of authority to local communities and to local government, and unless systems for equitable use and conflict resolution are established. Further, such transfer of authority should be in terms of clear and fair resource use rights. In many countries of Asia, those innovations have been slow to develop. Biodiversity planning will not succeed until political and institutional issues of this kind are addressed consistently and systematically.

Government and private sector accountability

These trends in devolution, regionalisation and community management are inextricably bound together in complex ways, and are also tied to accountability. Unless the NBSAP process promotes and brings accountability to those in authority, then the entire approach can unravel. The concept and practice of accountability is a weak element of biodiversity planning in Asia.

The use and maintenance of biodiversity requires decisions affecting peoples' economic and social well-being. People must be able to trust those making decisions, and accountability underlies that trust. Accountability first means

openness in administrative and policy-making systems. It has a number of key ingredients for those affected by a decision:

- ready access to the information on which a decision or policy is based;
- input to the decision through presentation of their views and submissions;
- reasons for a decision and its consistency with understood principles and policies; and
- the ability to appeal a decision through an open process if they feel it is unfair.

Biodiversity planning requires more than just openness in a specific decision-making situation. Accountability in government requires capacity for assessing the changes taking place in the environment over time, for analysing their cause and effect, and then for communicating that knowledge to the public and decision-makers. The public must be able to rely on government to keep it fully informed about the effects of development in local areas and beyond. As argued in Chapter 18 on communication by Jinie Dela and her colleagues, there can be no change in patterns of behaviour without such information.

These basic requirements of accountability apply as much to the private sector as to government. Increasingly, it is private- and not public-sector activities that have the greatest adverse impacts on biodiversity in Asia. Accountability in the private sector is in its infancy. Business needs to assess, monitor and report on its effects on biodiversity but the policy framework, tools and capacity for doing so are not well developed and investment for the purpose is negligible. It is a field largely neglected in NBSAPs in Asia. Understandably, factory-specific health and safety concerns remain the initial focus of attention in the private sector but there is little evidence of any inclination to move beyond that to understanding the effects on biological resources at each stage of the production and consumption process. For most people, and indeed for many in government, private sector activities remain a mystery until they begin to undermine public health and livelihoods. Private-sector accountability and environmental responsibility in day-to-day operations is not common in Asia.

There is a good reason for pointing out the political nature of biodiversity planning. Most of the key traits in governance which are being promoted in NBSAPs are also evident in the political and administrative changes taking place throughout the region. Biodiversity planners need to be sensitive to those changes and build on them. It is important that planners make the effort to understand the perspective of those concerned with administrative

and economic reform and adopt a language consistent with them. Only in this way can biodiversity planners become players in mainstream government and begin influencing the direction of reform.

Biodiversity planning as an economic process

As implied in the earlier section on causes of biodiversity loss, the most significant lesson learned in Asia is that biodiversity planning needs to be managed as an economic process. It must become an intrinsic part of economic planning in any country, from the national level down to local landscapes. To date it has not been; in fact, it has been marginalised and excluded from economic planning.

The main government mechanisms in Asia for conserving biodiversity are protected areas, zoos and botanical gardens. Producer sectors (such as agriculture, forestry and fisheries) also have the potential to play an active part as biodiversity conservers, a fact only now being recognised. Protected areas are critical vehicles for conservation, but they are not treated seriously as key units of production in the economy. Once set aside in protected areas, biological resources are no longer appearing on national economic radar screens (even though they have an important place in local and national economies). They become isolated from mainstream development planning and exist only in terms of the narrow sector budgets of parks agencies and zoo managers.

In Asia, protected areas often have no place in local or regional economic development plans. They are set up, managed and planned in relative isolation from the surrounding economic landscape. While the biological resources they contain may be heavily exploited, there is no formally recognised economic exchange between protected areas and the hydro schemes, irrigation systems, plantations, industrial plants, fishing fleets and pharmaceutical factories which benefit from the natural system and biodiversity services they provide; in other words there are no fees for services and products. Formalised economic relationships are usually limited to local communities that receive only a small fraction of the economic benefits from protected areas. The fact that protected areas, and their biodiversity resources, are not formally bound into the system of economic planning and market processes which surrounds them means that most of the protected areas in Asia are on their way to oblivion.

The message is clear from every country in Asia: biodiversity planning has little connection to the main forces shaping the use of resources. In the chapter on India, for example, we learn that “the model of development in India has undervalued biodiversity and the benefits it provides Indian

economy, culture and society. In addition the role of biodiversity in the lives and livelihoods of a large section of the country's population has been neglected". In China, "the belief of most administrative agencies was that biodiversity conservation was in direct conflict with economic development, which had the higher priority. They were not as aware of the long-term benefits of biodiversity conservation to sustainable economic development." In Australia, "key decision-makers and advisors continue to undervalue the economic and social benefits of biodiversity conservation" and have "subordinated them to economic and social factors in major development decisions."

Reasons that biodiversity remains external to the economy

There are a number of very good reasons why biodiversity and its constituent parts are not recognised in the economy.

Biodiversity services need to be given market value. Underlying all biodiversity planning to date is the reality that most of the services provided by natural systems are "worthless" in market terms. Species and genetic material have long been exchanged in the marketplace (rice, timber and fish, for example, are staples of Asian markets). Establishing market value for biodiversity services, however, is a challenge.[9]

Box 5. Biodiversity's contributions to development

The development contributions of biodiversity services are only now beginning to be understood. They include the following examples:

- **storing ground water (through soil biodiversity's role in maintaining soil structure and, thus, water-holding capacity) and regulating water release to ensure consistency and predictability in crop production;**
- **protecting fish nursery areas, thereby sustaining inshore stocks of marine products;**
- **protecting coastlines against damage and reducing the impact of natural disasters on life and property;**
- **protecting watersheds for downstream hydro-electric, irrigation and water supply installations;**
- **controlling soil erosion and recycling nutrients;**
- **providing a natural sink and treatment for wastes and restoring health and productivity to wastelands;**
- **controlling salination in soils and water;**
- **preventing and reversing desertification; and**
- **providing for tourism and recreation.**

For the most part, biodiversity services are taken for granted, even though they are irreplaceable and they provision and sustain local economies. Important valuation work is being carried out in various pilot projects and monetary values are being given to biodiversity services. The demand for the services is there — getting people to pay for them is another matter.

The effects of good biodiversity management need to be recognised in market prices. Part of the problem is that biodiversity services are "hidden" and their effects take time to have a wide range of specific impacts on the market. It is estimated, for example, that disruption in natural water regulation due to forest loss in the central highlands of Vietnam accounts for around 50 per cent of seasonal fluctuations in rice production. Natural systems may approach total collapse before loss of production and associated market signals bring a political response; even then the systemic causes of the crisis are often difficult to identify. The necessary monitoring and feedback is not built into the institutions concerned.

Practical tools are needed to bring biodiversity into the economy. Biodiversity planners do not have credible and easily applied methods for understanding and managing biodiversity in economic terms. Our natural systems are complex and relate in complex ways to our economic systems. The measurement of those relationships — so they can be given appropriate weight in economic decision-making and management — is in its infancy.

Biodiversity concerns need to be brought into the economy at an early stage in planning. Integration techniques which are used consistently (for example, environmental impact assessment) are most often applied later in the process when economic commitments have already been made. They are not applied widely early in economic policy and plan formulation when strategic decisions are being made on resource use.

Socio-economic and spatial planning should function as part of the same process. The importance of biodiversity resources to the economy is most clearly expressed in a spatial context. Resource use conflicts, trade-offs in development decisions and the potential for integrating development with natural systems are all felt and understood more readily when planning for local areas and landscapes. In many countries of Asia, however, detailed economic targets and strategies are developed with minimal reference to the local limits and potentials of natural systems, or to their capacity for renewal. This applies particularly to those countries with a history of central planning (such as China, Vietnam and Lao PDR) and with poorly developed spatial planning systems. The spatial context, where biodiversity values are most

evident, is not give adequate attention in most strategic economic decisions. The political trends of devolution and regionalisation, discussed earlier, are changing this situation and encouraging steady integration of economic and spatial planning, with the potential for promoting biodiversity concerns.

Biodiversity should be strongly represented at cabinet level. Because biodiversity is not yet expressed as an economic commodity by government it is relegated to the status of an "unproductive" sector. Key decisions regarding its management are made for political reasons. Production (the majority) is pitted against biodiversity conservation (the minority). In Asian countries, as in other regions, government is dominated by sectors for promoting and maximising production. The relatively new environment sector stands alone and has little weight in cabinet. Biodiversity planners recognise that it is their role to build a sense of shared responsibility and ownership in development sectors, but they are not sure how to go about it. If NBSAPs had been prepared in accordance with all CBD provisions, rather than mere extensions of work on strict protected areas and on species, this issue would have been addressed and some fruits might now be ready for picking. The constituency for biodiversity within high-level political bodies will expand once it is built in as a fundamental theme of sector budgets and mandates.

Trends in giving value to biodiversity capital

Biodiversity planning demands that the benefits provided by ecosystems, species and genes — and the costs of their loss — are reflected in national budgets. In the countries surveyed in this book the NBSAP process is making leaders aware of five simple facts:

1. Biodiversity resources are degrading and diminishing.
2. The state of the economy is linked to the state of biodiversity resources.
3. The economy does not give market value to biodiversity services and many products.
4. If the economy is to prosper, all forms of capital — human, financial, manufactured and biodiversity — must be fully valued.
5. Government has a key role in guiding the economy to internalise biodiversity values.

Thre is a real sense from the chapters which follow that biodiversity planners have reached a crest in the hill by trudging head down, and are now uncertain about how and where to go from here. They appear to be crossing over from the natural sciences — having concentrated on understanding the biological condition and trends — to a world dominated by human sciences, and the need to devise social and economic tools for ecosystem well-being.

Government, business and the community are emerging as the three main targets of biodiversity planning. By tradition, biodiversity planners have tended not to be businesspeople, but the business of biodiversity is now seen as a very profitable field of enterprise. It is concerned with maintaining, and even sometimes enhancing, the productivity of natural systems, eliminating waste and restoring the stocks of biodiversity capital. It is concerned with marketing biodiversity services. But there is much for government to do in creating the policy and incentives that will suuport the transition to a new economy, one where essential biodiversity services become a profitable commodity.

A number of the more innovative NBSAPs are beginning to explore the ways in which government in making this shift. In China, sectors such as agriculture, industry and hydro generation requiring a clean accessible supply of water are taxed to compensate communities whose development options are constrained by the need to maintain watersheds. This is only a first step to changing the way the market perceives ecosystem services, but it is a move in the right direction. Thailand is making a bigger move by bringing together the irrigation sector and the protected area authority (the Royal Forest Department) to negotiate regular payments for the watershed management services. Both those innovations require some level of appreciation of what the services are worth in monetary terms. China and Thailand are both experimenting with valuation, as are a number of other Asian countries; for example, in the Philippines chapter we learn of the government's Environment and Natural Resources Accounting Project (ENRAP). Perhaps the most important aspect of this work is the pressure it brings on government agencies to reflect biodiversity costs as a regular and standard component of their budgets.

Biodiversity planning through budget management

Sector budgets should be the next major target for biodiversity planners. Budgets and their management and monitoring have to be the focus of attention. The NBSAP experience to date has shown that defining broad areas of action and expecting sectors to take up the initiative in their own programs is not feasible. Even when sectors have been involved in defining those actions and are instructed by the highest levels to implement them, they don't. The shift from the environment sector into the daily operations of development sectors is not taking place. NBSAPs have been adopted, but they are sitting like siege engines outside the sector walls. Once again, there are very good reasons for this apparent stalemate; most relate to a lack of sensitivity and subtlety in the biodiversity planning approach.

To be taken up by a sector, a biodiversity action plan has to be finely tuned to its needs, capacities and opportunities; it must be specific to that sector. Comprehensive, broad-based NBSAPs are too blunt and are becoming less useful by the day in dealing with the real micro-challenges within the detailed management of each sector and geographic area.

In some countries, comprehensive NBSAPs have become an impediment to action. They lack the policy and program precision needed, often providing too much detail about projects unrelated to the sector's existing institutional and budgetary framework. There is a gap between broad policy and detailed projects, and little or no consideration of the practicalities of implementation. Many are simply project wish lists. Ministries become frozen with indecision on how to proceed; at best, they end up implementing individual projects on an ad hoc basis as international funds become available. The strategic integrity of the NBSAP is lost as some segments of it are selected and others dropped. Also lost is the opportunity to systematically work through and reorient sector policy and practice.

How does all this relate to the need to focus on sector budgets? The first step learned from the NBSAP experience in Asia — one which is well understood — is to reach consensus among all sectors on a common set of goals, principles and basic approaches. This provides the national strategic framework for the much more time-consuming work ahead. The framework needs to be adopted by the highest level of government as a short guide to key policies and the journey ahead. All government agencies and levels are required to give practical expression to the strategy within sector programs. The process so far is fairly standard and has been followed by most Asian countries, but many have had difficulty in keeping the process strategic. Documents have ended up being too prescriptive and detailed.

The real divergence from existing practice is in the action planning, which now separates into different strands of intensive effort with individual or small groups of linked sectors. It becomes a distinct and annual process within each sector in keeping with normal budgetary cycles. The intent is to gradually begin reshaping the budget: the priorities it reflects, the staffing and structures it supports, and the programs it feeds. Biodiversity action planning must boil down to good budget management.

Several outcomes are sought from this process:

- intensive working links between the key biodiversity agency and individual sectors;

- the review and reorientation of existing programs within the sector to reflect biodiversity strategy principles;
- the identification of institutional, administrative or policy obstacles to those principles within the sector;
- innovations in programming and activities and reorientation of sector priorities; and
- budgetary self-reliance relating to biodiversity management within the sector (first through adjustments to government budgets).

The last point needs more explanation. Over the past decade, NBSAPs have bred dependency. They have been designed in part as agendas for donor assistance. By default, governments have adopted the stance that biodiversity is a matter for external funding, while domestic resources go to development or "productive" sectors. If a proposed project does not attract international support, then the chances are it will not be implemented. Action plans are regarded as an add-on to existing budgets. This is true for most developing countries of Asia, to a greater or lesser extent.

The concept of NBSAPs as vehicles for external funding is not good for biodiversity or government. It impedes agencies from making the necessary adjustments to play a proactive role in the new economy in which biodiversity is capital to be maintained, enhanced and marketed.

Greater flows of international money are required to support countries in the transition. This is not the issue. What is important is that biodiversity planners must always encourage and promote financial self-reliance in government agencies. When defining an action plan there are three questions that the target agency needs to ask, in this order:

1. What can be achieved within existing budgets and capacity? (this is where we start);
2. What will require budget adjustments and/or modest additions from central government? (we will set this in motion);
3. What will require significant additional budget contributions from external sources? (we will seek external financing only if high-priority actions cannot be achieved with domestic budgets).

The bulk of the action plan should be built around what an agency can do with the resources at its disposal, with little or no addition from government sources; the potential for biodiversity "retrofitting" needs to be fully explored before shifting to higher levels of support. If external aid is deemed necessary then there are a number of guidelines to be followed:

- it should use a form of funding that enhances rather than undermines self-reliance;
- it should be integrated into programs which were defined on the basis of existing budgets;
- It should provide consistent, low-level and long-term support.

India and Thailand are the only countries surveyed here (apart from Australia and Singapore) which have vigorously promoted self-reliance by government agencies in the NBSAPs.

Forms of external funding which promote self-reliance

Self-reliance in biodiversity management is the ability to cope with all aspects of a challenge with a minimum of outside help (including budget maintenance) and the motivation to do so.

One of the thorniest issues of development aid relates to financial sustainability, the ability of the recipient to take on the long-term budgetary obligations of new initiatives once external support ends. Many factors influence sustainability; for example, the scale and pace of aid, and the way it is designed and delivered. National and local environment funds in Asia have proved especially promising in supporting biodiversity planning and management in a way that maintains a sense of self-determination and reliance. They become a focused supplement to government budgets which are managed and controlled by the users. They can be permanent funds operating on interest earned, they can be replenished through public and private sector contributions and charges, or they can be one-time sources of finance which are complete once the capital is gone. They can operate through loans, grants or a combination of the two. Bhutan has a national environment fund which goes mainly to biodiversity concerns, Nepal is setting one up in conjunction with its NBSAP and the Philippines has extensive experience with local funds linked with specific protected areas or biodiversity hot spots. Vietnam has recently established a local environment fund and its National Environment Agency has proposed a national environment fund (MPI 2001).

The design phase can be important in generating confidence and control in institutions. There have been problems with the Global Environment Facility in Asia in this respect. The dominating involvement of the GEF implementing agencies (mainly UNDP and the World Bank) and their very complex procedures often sideline recipient agencies while international teams prepare the ground for GEF grants.

Annual and long-term budgeting for biodiversity planning

Biodiversity planning through budget management needs to be institutionalised over time through the development plan and budget cycles of each country and agency. In India, for example, the NBSAP elements are included in budgets presented by states for the national five-year plan. The planning commission oversees the budgetary allocations for various sectors from central to state government and is in a position to ensure that the NBSAP and the state BAPs are effectively supported and followed up, with an opportunity for annual review and adjustment. Special skills, sensitivities and procedures are required in economic and financial planning authorities to cope with this responsibility; few in Asia have acquired these new capacities.

As early as 1995, Vietnam's Prime Minister directed the Ministry of Planning and Investment (MPI) to define annual implementation plans for the NBAP with sectors and provinces. The annual plans and budgets had to be prepared in cooperation with the environment ministry (MOSTE). Each agency was then directed to work closely with MPI and MOSTE in carrying out its plan and in keeping those agencies informed of outputs. MOSTE was required to submit annual reports on progress to the Prime Minister. The procedure has never worked. There were no support programs to put the necessary capacities and detailed procedures in place within MPI and the individual implementing agencies. While the concept was certainly a move in the right direction, institutional analysis is a critical early step to determine whether the staffing, structures, procedures, budgets and skills are in place to take on the new responsibilities

Linking biodiversity performance to budget allocation

The key to biodiversity planning through budget management is to use the process as the means of rewarding or penalising performance against an agreed plan and targets of achievement. If a sector agency has been helped to prepare a three- or five-year biodiversity action plan, the biodiversity and finance/economic authorities then need to use the annual budget to monitor and promote its implementation. Sectors performing well would receive budget increases; those with poor results would risk budget cuts. The success of such a system rests on the following:

- an agreed framework for measuring performance within each sector;
- a process within each sector of monitoring and reporting against that framework;
- credible and open comparative assessments, undertaken by the key biodiversity authority, between program areas and between sectors;

- a close and continuing working relationship between the biodiversity and finance/economic authorities.

Depending on the institutional and political system, the biodiversity agency might more effectively report to the Prime Minister or legislative body to give its budgetary recommendations more weight. Any report on biodiversity performance should result from a process of open consultation and, if feasible, agreement with the sectors concerned.

Setting priorities through biodiversity planning

There are several consequences of locking biodiversity planning into the cyclical budgetary process of government. It quickly becomes apparent that the implementing agency does not have to do everything at once. It can begin modestly and well within its capacities, in the knowledge that there will be regular opportunities to pick up additional elements to the biodiversity programs with each new budget period. This is comforting and convenient since, in situations of scarce budgetary resources and limited capacity, it is simply not possible to do everything at once. Only the most important things can receive attention.

One of the most important functions of biodiversity planning is the setting of action priorities. NBSAPs that fail to sharply define what should be done right away and what can be left till later will be difficult to implement and always have an aura of underachievement. Being faced with too many things to do often leads to inaction by implementing agencies or dissipation of resources.

Countries have confronted the challenge of making hard choices in a number of ways. The Philippines decided that "the first and most important requirement must be the immediate protection of what remains...The priority sites for conservation must be protected immediately from all forms of destructive and exploitative human activities." This policy focuses the initial phase of priority setting on the selection of sites.

In Australia, the biological hot spots have been determined, both in terms of high biodiversity value and major threats, but comprehensive biological priorities for the nation are not directly identified in the NBSAP. The NBSAP does, however, include a clear set of issue-based priorities extracted from the complete range of its objectives. The priority areas for action are indicated as specific outcomes with time frames for achieving substantive results. In India, the central NBSAP team has requested that agencies at the national and state level make their own choices of what must be done, but provide clear reasons for their decisions.

In biodiversity planning in Asia in general, however, the underlying logic for priorities set out in NBSAPs is poorly enunciated and methods for making choices are not well developed. They need to be. The priority setting framework provides the justification and direction for all investment in biodiversity.

Setting priorities by identifying biodiversity hot spots

The most commonly used mechanisms identify hot spot areas: those which require immediate attention. Many NBSAPs include biodiversity hot spots, although a country's information systems and capacities usually determine how thoroughly the hot spot approach can be applied. In most Asian countries, hot spots have been identified through anecdotal information and expert opinion from academics and government field offices. This was the case in Pakistan, Nepal, Mongolia and Vietnam, for example. It remains the most frequently used and valid way of working within local capacities and focusing national attention and resources. Australia has developed a system of hot spot analysis called BIORAP or rapid biodiversity assessment which overlays satellite and ground information in such a way as to extend limited data and produce maps of species distribution and habitat and their relationship to other resource uses. Using such technologies for day-to-day planning and administration is beyond the capacities of many countries, however.

The key to the hot spot approach is defining clear criteria that will guide area selection in an open and consistent way. Species have been the conventional factor in identifying hot spots, usually the location of an endangered species or an area with high species numbers and endemism. Species-specific strategies are then developed which look at wider habitat and more precise genetic conservation requirements. While this is an important starting point for biodiversity priorities, it is narrow and lacks orientation to the broader biodiversity perspectives of the development sectors and communities.

The concept of hot spots is evolving to give attention to ecosystems and to areas which, in their natural state, are critical to the supply and maintenance of essential services and products.[10] The ecosystem approach is more useful for its potential to consider economic, social and natural functions of biodiversity, thereby broadening the constituency for its conservation and wise management.

Agro-biodiversity hot spots

What is lacking in all Asian NBSAPs is an acknowledgement of agricultural biodiversity and of its distribution and hot spots. A great deal of effort is expended on establishing seed banks of genetic material for agricultural species. This is critical work of last resort; ex-situ conservation cannot replace in-situ conservation. NBSAPs should pay much more attention to identifying and protecting the centres of origin of plant varieties as the richest source of genetic material. Increasingly, secondary areas of adaptation also need protection as places where local evolution of species has led to new cultivars adapted to local conditions. National systems of protected areas should be expanded to include those natural areas and human-made landscapes that are hot spots for crop species diversity. Such places are inextricably linked to the maintenance of cultural and social diversity. In many areas, the fabric of religious, economic and social relations, including local languages, is woven around diversity in traditional crop plants. More evidence is emerging to show that natural and cultural diversity is mutually reinforcing and that the loss of one inevitably leads to degradation and loss of the other.

Setting priorities by defining biodiversity regions

Some NBSAPs in Asia define biodiversity regions as a way of dividing countries according to natural systems. Mongolia based its BAP on six ecological regions and 47 biogeographic zones. The Philippines NBSAP identified 15 bioregions. In Sri Lanka, the NBSAP defined 15 terrestrial and coastal/marine bioregions. Australia, Cambodia, Indonesia and Vietnam all have been divided in this way.

Each region has its own biophysical and socio-economic characteristics and requires management strategies tailored to those characteristics. Biodiversity regions bring a more comprehensive and systematic approach to determining species and habitat distribution and their management needs. Some countries, such as Sri Lanka and Vietnam, have seen biodiversity regions as important to devolution and to helping local administrators integrate biodiversity in regional planning and development. A few countries (Australia, Cambodia, Vietnam and Sri Lanka) have taken the next step: using biodiversity regions as a key tool in defining national and local priorities for conservation action.

In Australia, biogeographic regions are planning instruments used at the national level to guide the strategic allocation of program resources. First used to help set funding priorities for the national protected areas system, biodiversity regions are increasingly being applied to help determine funding priorities for other natural resource management programs.

Box 6. Establishing priorities in Cambodia

The process followed in Cambodia's National Biodiversity Prospectus is a particularly useful example of priority setting when capacities and resources are limited.[11] Government had few field staff, few resources and little capacity to address the nation's many biodiversity problems. It needed to concentrate on a small number of the most urgent issues and areas. The prospectus experience demonstrates the value of defining screening criteria to progressively arrive at a judgement of what is most important.

In 1996-7, the prospectus led to a four-stage process. First, the country was divided into seven relatively homogeneous and geographically distinct regions based on biological resources, geology and soils, and past and present uses by local communities. Second, national and international experts, using existing information and field knowledge, applied this criteria in selecting biodiversity regions with the highest priority:

Biodiversity conservation reasons

- areas of international conservation significance;
- areas under greatest conservation threat;

Political and economic reasons

- relative security;
- priorities for economic development;
- relatively stronger administrative capacities;

Logistical reasons

- associated with major transport corridors and relatively accessible.

The southwestern coastal region, the northeastern forests and the central flood plain of Tonle Sap were given high priority due to practical considerations, including their political and institutional stability, potential economic significance, importance for conservation and sustainable use of biodiversity resources, and for logistical reasons. The prospectus gave highest priority to the southwestern coastal region because of the acute development pressures it faces. The other regions were considered to be of lower priority for conservation action due to a combination of lower biological significance, less security, and weakly developed administrative frameworks.

The third step involved focusing more precisely on critical landscapes within each of the priority regions; once again, management capacity was an important consideration. The protected area system provided the basis for delineating these landscapes. In the SW region, there are nine protected areas, and inadequate time and resources to address each park's manage-

ment needs individually. They were grouped into three "clusters" according to shared biodiversity characteristics and feasibility of collective management approaches (for example, shared administrative divisions).

Setting priorities by defining clusters of protected areas

The cluster approach allows a framework to be quickly established for management actions in a number of parks (and the land and resources linking them) at the same time. It allows for integrated regional planning with protected area management being a principal tool in the sustainable economic development of an area. It also provides for the following:

- focusing resources on the highest priority problems within the cluster;
- sharing experiences and lessons between parks within the cluster;
- developing common management approaches;
- sharing limited resources and skills;
- integrating resource development approaches in and outside parks; and
- inter-sectoral and coordinated delivery of services.

Criteria for setting priorities between protected area clusters within a region

The need to attract international support led to a fourth step which identified one of the three cluster landscapes for most urgent attention. The Elephant Range and associated coastal landscape with four national parks was selected for international financing for the following reasons:

- high biodiversity values, including a substantial number of internationally threatened animal species;
- immediate potential to be a national resource for conservation tourism;
- relative security;
- part of a major development corridor between Phnom Penh and the country's largest port, Sihanoukville;
- easy accessibility by road, air and sea;
- high potential for integrating conservation and development, with consequent benefits flowing to local communities;
- opportunity to explore integrated coastal management options including sustainable use of marine and terrestrial biodiversity resources;
- highly productive coastal habitats of considerable economic importance, requiring systematic management if they are to be conserved;
- inclusion of at least one site of international importance (Bokor Mountain National Park); and
- an opportunity for demonstrating sustainable use of biodiversity resources.

The Cambodia case illustrates the usefulness of screening criteria combined with other methods of defining regions and landscapes. In four steps it was possible to go from assessing country-wide biodiversity regions to a specific landscape which has the highest priority for action.

Vietnam and Sri Lanka carried out similar work. In Sri Lanka, three terrestrial and three coastal and marine bioregions of a total of 15 were identified for immediate attention. The NBSAP team attempted to provide a quantitative base for their rankings. The degree of threat to biodiversity resources, for example, was estimated through population density and development pressure as reflected in the percentage of urban population and the number of schools per 30 sq. km. Similar calculations were made of economic potential, degree of access and watershed value. In Vietnam, three of ten terrestrial biodiversity regions were give top priority; one (covering the central highlands) was selected as a pilot for regional BAPs. In Thailand, the protected areas cluster approach is being used to help set management priorities.

Priorities are not permanent. They need to be reviewed and updated with every budget cycle. And they can be difficult to stick to if much of the funding for biodiversity conservation comes from international sources. Donors prefer to establish new territories rather than consolidating actions in partnership with a number of other donors. Governments tend to be opportunistic and yielding under these conditions and the framework of priorities breaks down.

This is why it is so important for an NBSAP and subsidiary BAPs to be used by biodiversity planners to define a credible set of priorities with the organisations that have the potential to fund them, whether they be domestic finance ministries or external donors. The process needs to be open and inclusive and lead to an agreed set of options and criteria to choose among them.

Priority setting has focused on geographic areas, but there are other targets. In Sri Lanka, sectors were reviewed and a number of them were given highest priority for urgent action. In Nepal, a gap analysis was carried out of existing government and international biodiversity programs; a key criterion for selecting between options (i.e. areas, sectors, issues) was the extent of existing funding.

Some priorities come ready-made, for example, when they have been repeatedly reinforced in successive government policies and strategies. One lesson from the Asian NBSAP experience is the importance of acting from day one in fields in which the government or local community is already committed. If there is a groundswell of political support for an action, and it has been

identified in past policy, then treat it as an immediate priority and begin implementation. This gives the NBSAP process momentum and credibility.

Sub-national biodiversity planning

The first round of NBSAPs emphasised the preparation of comprehensive action plans at national level. But the Asian experience would suggest that it is easy to over plan nationally and inhibit detailed planning in sectors and lower levels of government. Many countries have put considerable time and resources into the national BSAP exercise to the extent of listing specific projects for implementation by sectors and local government.

The gap between policy and projects. Leaping from broad policy to specific projects ignores the need for policy analysis and programming within the implementing agencies. In most of the countries surveyed here, there is little credible policy analysis in sectors or at subnational levels, and a lack of associated development of program frameworks for specific activities and projects. This is especially the case in those countries heavily reliant on foreign aid (which tends to function on a project basis). The capacity for policy and program development needs to be strengthened and exercised. Only through this kind of internal reflection and analysis will biodiversity concerns gain a foothold and be integrated systematically in resource development agencies. If it is spoon-fed project by project through the NBSAP process the biodiversity effort becomes piecemeal and transitory.

The broad strategic policy set out in an NBSAP requires commitment from sectors and local levels but they should be guided in planning their own actions on a medium-term (3–5 years) and annual basis. The national level must define the process and legal obligations for ensuring that this happens, as well as the monitoring and reporting framework and the mechanisms for coordination. It must also clearly define institutional responsibilities and a system of incentives and disincentives linked directly to annual budget allocation. Strong capacity-building and support programs are needed to enable agencies to take on the new responsibilities and plan effectively.

Institutional analysis is a critical first step. It is demoralising for an agency to take on tasks it is incapable of implementing. A key function of the NBSAP process is helping sectors and local government understand their own limitations and the capacities required for making a genuine contribution to biodiversity management. The methods of institutional analysis of this kind are not well developed, and require assessments of staffing levels, skills, functions and incentive schemes. What are the primary forces operating within

an institution which foster and direct performance? How is the institution structured to facilitate its mandate? How does it relate to other institutions and its own constituency? These are the kind of questions which biodiversity planners need to work through with implementing agencies, because they hold the key to exposing the adjustments and reforms required.

Although agencies will evolve through a process of self-discovery as they attempt to implement biodiversity policies, institutional analysis can do a great deal to guide them and provide impetus to change, particularly if followed up by targeted and well-financed capacity-building programs. While an institution can be reshaped to take on its biodiversity responsibilities, the NBSAP process should take care not to set overambitious targets, not to go beyond what can realistically be achieved.

Devolving biodiversity planning

The introduction to this chapter recognised the shift that has taken biodiversity planning to the sectors and to specific areas, the reorientation of effort to enable the national strategy process to integrate with the system at all levels. NBSAPs need to anticipate, promote and give direction to this positive trend, as discussed earlier.

India is instituting decentralised biodiversity planning. In fact, it is the only country in Asia to build its NBSAP from the sub-national level of government up with the coordinated preparation of individual action plans for the 30 states and union territories of the country; 10 interstate ecoregions; 19 high priority sub state sites; and 14 themes relating to biodiversity at national level.

When completed, the NBSAP will be a distillation of the common policies and strategies arising from this decentralised process. India's experiment in biodiversity planning should be followed closely for lessons it can provide other countries in the region. (In the 1980s and early 1990s a similar approach was taken by Malaysia, where state conservation strategies led up to the preparation of the National Conservation Strategy. Malaysia did not follow this approach when preparing its NBSAP.) The success of the Indian approach will depend on whether the momentum created by this energetic decentralised planning can be maintained. People can become frustrated if institutional arrangements and capacities in some states, regions and districts are not up to the task and fall behind.

Box 7. Principles of NBSAP devolution

NBSAPs should provide the framework for sub-national biodiversity planning. Three important principles for NBSAP devolution can be drawn from the Asian experience:

1. **The national process should not prescribe projects which agencies must undertake, but support the development of a biodiversity planning process within each sector and level of government which facilitates incremental integration of biodiversity concerns in day-to-day operations. In other words the NBSAPs should be concerned with devolving a process and not sending out sets of project instructions.**
2. **The national process should promote collaborative planning wherein several political or administrative units within a biodiversity region work together to define cooperative actions for shared biological resources.**
3. **The national process should define the skills, capacities and resources which agencies need to undertake biodiversity planning, and the actions required to provide them.**

A number of Asian NBSAPs that have foreseen the need for more detailed and devolved action planning have attempted to lay the foundation for it to unfold on a more gradual basis and according to priorities of the type discussed earlier. This devolved planning is being expressed in various ways as illustrated below.

Regional BSAPs

The Sri Lanka NBSAP prepared the ground for regional BSAPs and provided clear direction on where to first apply effort. The 1994 NBSAP in Vietnam did the same: BSAPs for biodiversity regions were identified as a priority in the 1998 NBSAP review, and given greater weight in the 2001-2010 National Environmental Protection Strategy. One aim of Australia's NBSAP is to have biodiversity managed on a regional basis, using natural boundaries to facilitate the integration of conservation and production-orientated management through the preparation and implementation of bioregional plans.

While recognition of bioregional planning's importance is growing in Asia, no countries — apart from Australia — have given it legislative footing. In practice it still needs to take hold as a significant influence in the management of biodiversity. A number of countries have concluded that effective implementation of NBSAPs through regional and other sub-national

biodiversity planning processes requires a legislative base that stipulates the levels of planning and responsibilities.

Sector biodiversity action plans

The experience with sector strategies is similar. Most NBSAPs have given attention to actions required in key natural resource development sectors such as forestry, fisheries and agriculture. But prescriptions are often too broad or too specific, failing to guide sectors through their own biodiversity planning process or follow up with long-term technical support. We learn from the Vietnam chapter, for example, that the NBSAP encourages sectors to integrate biodiversity conservation into their planning processes, but gives no direction on how this is to be done: " In short, the NBSAP does not include a strategy for integration. There are no guidelines on the mechanisms and tools that might be required and no consideration on the level of resources involved."

In general, sectors have been involved in formulating NBSAPs; this has led to ad hoc innovation in their programs. Following the initial enthusiasm, however, many NBSAPs have been treated as one-time initiatives by both the instigating and sector agencies. They have been prepared as a project agenda and then left for individual sectors and local governments to implement on their own initiative.

It is hoped this will not be the case with the Cambodian NBSAPs currently in preparation. Each sector has been asked to examine its policies and activities for their effects on biodiversity conservation, and sector representatives are members of the national body responsible for compiling the NBSAP.

Thematic and species BSAPs

NBSAPs have been most successful in providing strategic direction for the conservation of critical ecosystems such as forests, wetlands, mangroves, coral reefs and grasslands, and for key conservation issues such as invasive species. Some critical ecosystems have received special attention through individually tailored action plans. These are usually linked to international agreements other than the CBD, as in the case of wetlands, for example. Wise management of these systems involves the coordinated actions of many sectors, so once again effective NBSAP implementation boils down to individual agencies building the strategies into their own planning and budgeting, and working with others on an area-wide basis. NBSAPs depend on each agency's having operational plans and procedures for strategy implementation.

Protected areas, captive breeding and conservation of individual endangered species are usually the mandate of special agencies; therefore, it is more

straightforward to take the strategy through to programs of action. Agencies are set up for a specific purpose and often plan and manage in relative isolation from others due to their restricted authority. Protected areas and captive breeding, like seed banks, are the lines of last resort. They need to become the backbone of an integrated strategy. In the meantime in Asia they are vital holding measures while all arms of government are being gradually transformed to take on the sustainable use of biodiversity as central to their mandates.

Relationship with other environment and development plans

The question often arises of whether biodiversity planners should seek to integrate biodiversity concerns into existing environment and development plans, or aim for agency and area-specific BSAPs which are separate and distinct. The answer is yes to both. Although the long-term goal is to integrate biodiversity into the workings of all agencies, it will need to be singled out for special attention so long as it remains a satellite concern. In most countries that means, for example, regular preparation of sectoral biodiversity strategies and action plans, and then incorporating them into sector development plans as part of the normal budget cycle. Sectors will need guidance on how to do this. Once biodiversity begins to be a consistent part of agency programs, then a sector might limit itself to a distinct strategic policy framework that includes performance indicators. Detailed biodiversity action planning would continue as an integral part of the sector's overall planning procedures.

It is essential to provide focused and unambiguous direction on biodiversity while institutional adjustments are made and special systems put in place. So long as the conservation of biodiversity resources is given low or no priority, it will need to maintain a clear identity and high political profile. This includes using other environment strategies and development plans as a vehicle for biodiversity concerns. Michael Kennedy and Andreas Glanznig make the point well in Chapter 3: "The tools of biodiversity planning and management need to be woven into an overall approach to the environment. National BSAPs and sub-national level BAPs are important policy packages, but the priority setting and implementing tools should be well integrated with other responses."

A very practical reason for maintaining a distinct strategic and monitoring framework for biodiversity for each sector, for regions and for each level of government is the need to keep track of performance. At the least, this facilitates national reporting under the CBD; more importantly, it ensures that

resources are continuously channelled to areas of highest priority and those where interventions are having the most positive effects.

The international ecological footprint

NBSAPs have not addressed the impact which one country has on the biodiversity of its neighbours and the world, its ecological footprint. There are three main components of this issue:

1. The operations of citizens of a country outside its territory can directly affect the biodiversity of others.
2. A country's biodiversity resources are affected by international activities.
3. The consumption and development patterns within a country can affect the biodiversity of others.

Only one Asian NBSAP, the Australian strategy, makes reference to the first concern; understandably, many address the second. No NBSAP in Asia directly addresses the third.

Commercial operations in other countries. Each country should assess the impacts of its people on neighbouring and global biodiversity. The place to start is by controlling the operations of its citizens and businesses in other countries or international territories. For some decades, states have taken the position that their citizens and companies must function according to the laws of host nations. For the country of origin to impose additional controls would amount to an infringement of the host's national sovereignty. That argument has been used, for example, in the case of unsustainable forestry practices of Malaysian and Australian logging companies in Papua New Guinea; of Thai and Vietnamese logging companies in Cambodia; and of Singapore rattan processing companies in Cambodia. It is now evident that the national sovereignty argument is a means of turning a blind eye to international environmental responsibilities. For a country of origin knowingly to allow its companies to continue damaging practices when host country legislation and capacity is unable to control them is tantamount to resource piracy and vandalism. All countries should require that their commercial operations be at least consistent with their own domestic laws and international standards.

The U.S. is one of the few countries which requires its companies to comply with domestic environment assessment legislation whereever they operate. No states in the Asia region do so.[12]

The Australian *Environment Protection and Biodiversity Conservation Act 1999*, reviewed in Chapter 20, steps back from this aspect of the NBSAP. It states

that the government must not take an action that is likely to have a significant impact on the environment anywhere in the world. The activities of the private sector and other government agencies are not covered by the provision and continue as before.

There is a basic principle here which needs to be rigorously applied by all countries: a state must take full responsibility for ensuring that the activities of all sectors of its society do not degrade biodiversity resources of other nations. If companies enjoy the benefits of associating with a national flag, they must help to shoulder that nation's international responsibilities. It seems simple enough, but it is not always easy to enforce, especially when environmental legislation and capacity both in the country of origin and the host nation are weak. If a country shows little concern for conserving its own biodiversity resources, it is unlikely to direct its commercial operations elsewhere to do so. The main reason why governments are reluctant to embrace this principle is the concern that it places their enterprises at a competitive disadvantage. The force of that argument diminishes as environmental performance becomes more and more influential in market success. The process of forest certification, which more companies are beginning to explore, is a good example of the way the market is moving.[13]

These are challenging issues for NBSAPs. Biodiversity planners must confront them and work through them with economic planners and the private sector so that the national strategy process leads to a framework of incentives that promote responsible behaviour.

The effect of outside activities on domestic resources. It is much more difficult for a nation to control the activities of foreign operations outside its borders which affect its domestic biodiversity resources. In Asia these situations commonly arise when nations share a river system or sea; the actions of upstream nations along the Mekong River, for example, have potentially dramatic effects on the biodiversity of downstream states. In every case, the main response has been to establish some form of international regime that allows all parties concerned to maintain an open dialogue, with an agreed framework of policies and incentives.

International agreements are of increasing importance to biodiversity planning and conservation in Asia and need to be promoted and enhanced through NBSAPs and international regional BSAPs. They can take many forms and are most useful if based on natural systems. The potential for bilateral agreements on shared biodiversity resources needs to be explored with greater enthusiasm, as do agreements between small groups of countries with shared ecosys-

tems. A legal agreement is the formal expression of a biodiversity strategy process undertaken jointly by the affected countries. The regional seas programs promoted by UNEP with their action plans and underlying legal agreements are a useful model.

For bilateral or multilateral BSAPs to be effective, participants must be prepared to express them through legislation and institutional adjustments at home. A first step in both the international and domestic response to a shared biodiversity resource problem is for individual countries to set out the issues and proposed domestic responses within their respective NBSAPs.

The effect of domestic consumption on the resources of others. This is probably the most important and most challenging of the three concerns; important, because it goes to the heart of integrating biodiversity into the economy, challenging, because the ways to understand the wider implications of consumption patterns are only now emerging.

An assessment of a nation's ecological footprint should be included in every NBSAP. Initially, it need not be a complex undertaking or an effort to arrive at a comprehensive analysis of the ecosystem, species and gene pool impact outside the country of every product consumed within it. But it should begin to expose the direct biodiversity implications of importing certain products and explore the safeguards needed to minimise negative affects. Trade in timber products and wildlife are two examples where the source of the raw material and the impact of its extraction can be assessed. China's import of wildlife species is having a major impact on the biodiversity of Lao PDR, Cambodia and Vietnam. An international agreement and an increasingly sophisticated system to track and control trade in wildlife already exists.[14] NBSAPs should provide a thorough assessment of a nation's wildlife consumption patterns and set out ways to improve its contribution to CITES.

Once a nation's ecological footprint assessment has disclosed some of the consumption patterns which have a significant biodiversity impact on other countries, there are at least three responses an NBSAP can explore to mitigate associated problems:

- international agreements to control trade in the product;
- economic instruments to change consumption behaviour; and
- development aid to help manage exploitation of the resource in a sustainable way.

The Australian NBSAP commits the government to "take action, through multilateral forums...to make international trade and environment policies

mutually supportive, in recognition of the contribution that this can make to the protection of biological diversity" (Commonwealth of Australia 1996). This is admirable, but should be complemented by action at home. Where Australian consumption of a product is causing serious biodiversity harm in another country, then domestic economic measures can be taken to discourage the use of the product or encourage use of an alternative. An important complement is the strategic use of development assistance to target those natural systems anywhere in the world which are suffering from Australian consumption patterns.

Timber and wildlife are relatively simple examples of domestic consumption having a direct and identifiable impact on ecosystems. The impact of energy consumption and industrial production of greenhouse gases on biodiversity is much more complex. Though most Asian countries are engaged in UNDP-sponsored activities to assess greenhouse emissions and climate change impact, no Asian NBSAP has attempted to address these issues. They should begin to do so as part of the national ecological footprint assessment.

Although some issues are too difficult for the initial round of NBSAPs and their successors, degree of difficulty should not interfere with setting priorities. Priorities should be determined on the basis of the seriousness of a problem. If a country does not have the resources to address the most critical issues, then the NBSAP should indicate this, not ignore it or assign it a lower priority.

Biodiversity conservation and poverty alleviation

Poverty alleviation is a dominant objective of development assistance, and a central theme in programs of the Asian Development Bank, the World Bank, United Nations agencies and bilateral donors. Conservation of biodiversity is usually included as a secondary supportive objective. Recently the two have begun to be seen as two sides of the same coin, with poverty reduction as the principal driving force.

Poverty alleviation and conservation should not be linked on the simplistic assumption that one can be achieved through the other. The relationship is complex and affected by wider economic and social forces. In various Asian countries appraisals of poverty alleviation projects with strong conservation goals show continued degradation of biodiversity resources whether or not the poverty alleviation goals have been met.[15] In some cases, a reduction of poverty in the short term has led to steep reduction in biodiversity.

The most serious implication of the poverty alleviation-conservation assumption in recent years is that donors and government have been reluctant to support conservation initiatives unless there is a foreseen poverty alleviation benefit. Restricting investment in biodiversity conservation in this way will have serious repercussions. Some of the more important lessons of the past decade are as follows:

- If projects are locally orientated, then poverty alleviation strategies may never halt the degradation of biodiversity resources in the area, since wider natural and economic forces are beyond local community control.
- Conservation objectives cannot be achieved in poverty alleviation projects unless accompanied by transfers in power and user rights over the biological resources in question.
- Both government and donors need to emphasise biodiversity conservation as a stand-alone national objective irrespective of its implications on local socio-economic conditions.
- In situations where decisions are made to conserve biodiversity in specific areas for national economic and natural resource benefits, then governments must introduce parallel assistance programs to mitigate against negative local effects, otherwise biological resources will continue to degrade.

While the third lesson may appear to be politically unpalatable, governments will need to use their national and local BSAP processes to identify those areas where long-term benefits to the wider community require strict conservation and to define the focused local socio-economic adjustment programs which must accompany it.

Structural adjustment associated with biodiversity conservation. Hard decisions will need to be made if biodiversity is to be sustained. Inevitably, there will be winners and losers when certain critical ecosystems or habitats are protected. Governments should not make decisions unless they have advance warning of specific dislocation impact and guidance on tailored adjustment programs to cushion the transition for those most affected. Apart from gains in the broad national interest, winners of conservation actions can include local enterprises benefiting from the maintenance of ecosystem services such as consistent and clean water supply. The losers may include mining companies exploiting minerals in the area. Sawmills may be forced to close, resulting in job losses. Local communities may be restricted in their use of the area. Such situations are similar to those of any structural adjustment, and need to be addressed through similar packages of compensation, general

adjustment assistance and retraining. Special emphasis should be given to support for poor communities that may be negatively affected by conservation decisions.

Ideally, national and regional BSAPs should include both environmental and economic dislocation early warning systems, with proposals for comprehensive adjustment programs to accompany the hard conservation-development decisions. If this is too daunting a task for those countries already challenged by the NBSAP process, then parallel adjustment programs should be defined and supported through some other mechanism. But without structural adjustment support of this kind, the more important biodiversity conservation decisions (i.e. those that inevitably will hurt) will always meet strong political resistance.

Mediation and conflict resolution. One of the most important functions of NBSAPs is to expose and deal with hard development-conservation conflicts. In most Asian countries, these areas of conflict will involve poor communities as well as large development interests. Often several government sectors are competing for use of the same resources. To date both conservation and the poor are most often the losers in these situations in the absence of respected institutions and procedures for conflict resolution. The role of national and local BSAPs as a process for mediation and conciliation to ensure that equitable solutions are defined is a critical field for further expansion. Currently, that role is not recognised and NBSAP teams have not had the mandate, skills or tools to explore it. Consequently, in the absence of permanent institutions for the purpose, the "hard" issues tend to be sidestepped by biodiversity planners as too difficult to handle. India is beginning to experiment with mediation through its NBSAP process (Chapter 14). NBSAPs do not replace mediation and conflict resolution bodies set up to deal with environmental and natural resource use issues. But few countries in Asia have effective bodies of this kind and while these necessary institutions are developing, the public inquiry and mediation functions of BSAP processes can contribute a great deal by working to define the issues and consensus on solutions.

Conclusion: big issues for the next generation of BSAPs

This chapter has analysed the lessons and best practice from NBSAPs raised in the country and theme studies which follow. There are a number of basic assumptions — for instance, that poverty alleviation is good for biodiversity conservation — and lessons which have had a resounding influence on attitudes and strategies for biodiversity conservation and which need to be examined more closely when shaping future BSAPs.

Another, closely related assumption is that **economic growth is good for biodiversity conservation**. Policies of the major multilateral banks operating in Asia are based on the argument that economic development will eventually lead to reduced environmental problems. As incomes rise, the argument goes, demand for enhanced environmental quality increases, and environmental performance improves. This is known as the Kuznets relationship and has been shown to hold true in cases of pollution control. The assumption has led to an approach widely adopted by senior policy makers in Asia: "develop now, pay later". Yet, recent studies of 139 countries have found that, in five out of seven major groups of organisms, the number of endangered species increases with growing economic prosperity (Norris 2000). Biodiversity planners need to carefully consider the implications of this apparent reversal of the Kuznets relationship for the diversity of biological resources when determining strategies and action plans (Van Kooten and Bulte 2000).

Another common assumption is that **high population density is bad for biodiversity conservation**. Like the misconception about poverty alleviation, the relationship between growing populations and biodiversity degradation needs critical analysis. There is evidence from different parts of Asia, for example, that areas of high population density and growth can also enjoy increasing resource productivity with little ecosystem and social disruption, where waste reduction and expansion of natural resource stocks are key economic functions. While there are limits to what any natural system can sustain, they relate more to a nation's ecological footprint than the size of its population. The relationship between population density and biodiversity conservation is complex, especially in Asia, and biodiversity planners must reflect this complexity in tailoring BSAP strategies to particular areas and communities.

Perhaps the most widely held assumption in this field is that **protected areas are good for biodiversity conservation**. Of course they are; in fact, they are a bastion for biodiversity, they are the bottom line. Why is it then that, despite increasing emphasis on this resource management tool and an expanding area being placed under protection, the biological resources affected continue to decline at an increasingly rapid rate? There are many responses to this question and most are touched on in this and other chapters of the book. Biodiversity planners in Asia need to work harder at understanding why this assumption may not be true. In fact, there are situations in Asia where biodiversity may have been better off if a protected area had not been established. They are often set up as a political response to a demand for conserving critical natural systems and species but are not viewed as an essential

ingredient in the effective economic use and development of resources. Consequently, protected areas have become isolated from the mainstream of economic planning and budgeting, and are in constant conflict and tension with it. Biodiversity planners need to learn how to promote protected areas as productive units of the economy.

A last assumption, that **local communities hold the key to biodiversity conservation**, places unrealistic burdens on those communities which are often least able to safeguard the resources on which they depend. Increasingly, local communities are bit players in areas of greatest biodiversity wealth. Safeguarding resources relates to equity, but equally important it relates to national self-interest on a regional and global scale. The market, no matter how rapidly it internalises biodiversity values, can never be the sole vehicle for saving what must be saved for social, economic and political stability. Some critical biodiversity resources will need to be locked away and rented out to those that can afford to pay. That transfer of funds for biodiversity can take place in many ways, direct from government to government, from multinational companies to government, from community to community and through the network of parties to international agreements.

In the past decade, the trends have not been encouraging on this front. Overall development aid has dropped by 20 per cent in real terms and is now less than 0.22 per cent of GDP in donor countries, the lowest level since aid statistics began in 1950 (UNDP/MPI 1999). Aid to natural resources and the environment is less than 10 per cent of that amount. The trend in development assistance needs to be reversed; the proportion of aid addressing biodiversity issues should reflect its level of importance to sustainability (Randel and German 1999).

Very considerable private funding is used to exploit biological resources in Asia but very little goes to safeguard biodiversity. There continues to be a dramatic upsurge in foreign direct investment in Asia. FDI is now four times the level of ODA, and biodiversity planners need to give concentrated attention on how to harness these financial resources so that they support and not undermine NBSAP objectives. The channelling of private investment can be achieved in part through a more comprehensive use of economic instruments.

A final point to alleviate the concerns of already overburdened biodiversity planners: this chapter has placed so many complex concerns on the NBSAP agenda that planners may wonder how they can cope. NBSAPs are in the early stages of their evolution in Asia and there needs to be modest expectations of what the process can effectively address. The key to successful NBSAPs is

delegation. NBSAPs need to be catalysts and frameworks for many of the things discussed in this chapter, but they should not attempt to do it all themselves. As much as possible BSAP processes at national level should remain lean, mean and authoritative, and leave most of the work to others.

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Endnotes

1. ESCAP 2001 provides assessments on the trends in ecosystem degradation in the region.

2. Barber and Schweithelm, 2000.

3. Equivalent of Australian $1 billion where a billion is a million million. A U.S. billion is a thousand million.

4. Commonwealth of Australia, 1996.

5. ESCAP 2001.

6. Decree 29/1998/ND-CP dated May 11 1998 and Regulation on Democracy in Communes.

7. Resolution No 26 dated June 25, 1998 of the Politburo of the Party.

8. For example: Decree 52 establishes the right for local communities to be informed about urban and rural plans and construction plans so the community can monitor their implementation.

9. Biodiversity increases ecosystem services functions. This has been demonstrated in a number of recent studies; for example, for grassland and wetland systems (Engelhardt and Ritchie 2001). Research is also showing that biodiversity enhances the resilience of ecosystems to disturbance and degradation (Mulder, Uliassi and Doaks 2001). In this chapter, the term 'biodiversity services' is used as shorthand to reflect those critical roles in providing, maintaining and increasing the value of ecosystem services.

10. Australia, for example, is destroying more native forest than any other developed nation and is now beginning to give priority to hot spots where native vegetation is being lost and ecological communities are threatened.

11. A "prospectus" can be undertaken as a first stage in the NBSAP. It is a feasibility and scene-setting study. It assesses the status of biodiversity, its management, policy framework and the capacities of institutions involved. It also makes recommendations on the feasibility of undertaking a NBSAP and on the approach to be taken. Cambodia is the only country in Asia to have prepared a Biodiversity Prospectus. Other countries, Nepal and Pakistan, for example, included this stage prior to embarking on their National Conservation Strategies in the mid-1980s.

12. The Australian NBSAP includes the objective: "Seek to ensure that the activities of Australians outside Australia are consistent with the conservation of biological diversity." It supports this commitment with a weak proposed action reflecting the economic sensitivities and political reticence in this field: "Australians and Australian commercial entities operating beyond the limits of Australia's national jurisdiction should take full account of the need to conserve biological diversity. Their actions should be consistent with relevant national laws, international agreements and codes of conduct. Practices that would be unacceptable in Australia should be avoided."

13. Forest Certification is the process by which companies voluntarily apply internationally accepted sustainable management methods to the forests that are the source of their timber.

14. The Convention on International Trade in Endangered Species (CITES).

15. For example, Wells et al. 1997 review conservation and development projects in Indonesia.