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Private Sector Initiatives in Nature Conservation

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The provision and management of protected natural areas has generally been regarded as the province of governments. Yet there are theoretical arguments to support the contention that the private sector can play a valuable role in nature conservation. There are also numerous examples of private sector initiatives in countries as economically, culturally and environmentally diverse as Australia, New Zealand, Germany and Vanuatu.

1. Introduction

Protected natural areas have largely been regarded as public goods. The benefits that public goods generate are non-excludable and joint in consumption. These characteristics mean that they will not be supplied through standard market channels: private provision is an untenable option. This logic has created an economic basis for the growth of networks of publicly owned and managed National Parks, Nature Reserves, Forest Reserves, Faunal Reserves, etc. in countries around the world. Governments at federal, state and local levels have all been involved.

Whilst in the late 80s and 90s, other areas of the public sector have been subjected to increasing pressure to privatise, the nature conservation bureaucracy appears to have been particularly well isolated from the trend. The benefits of privatisation that have been sought in areas as diverse as transport provision to water supply, have been foregone in the nature protection case perhaps because of the belief that, in the hands of the private sector, the benefits enjoyed from conserving the resource would be ignored and alternative, profit-making extractive uses would predominate.

It is the aim of this paper to demonstrate that, theoretically, it is appropriate for the private sector to become involved in the process of supplying protected natural areas both through the ownership and/or management of such areas. However, this is not to say that public sector involvement is not required at all in achieving a Pareto efficient level of supply of protected natural areas. Rather, it is concluded that the ownership and management structure for protected areas (PAs) needs to be determined on a case by case basis according to

the particular characteristics of the benefits supplied. This assessment is based principally on the observation that PAs frequently supply a mixture of excludable and non-excludable benefits and that the free-rider hypothesis of behaviour, which in theory precludes the option of private provision of any non-excludable good, is not universal.

Furthermore, the paper is aimed at showing that several *modus operandi* for the involvement of the private sector have been established in countries as divergent economically, culturally and environmentally as Australia, New Zealand, Germany and Vanuatu. These range from absolute private ownership and management of PAs by commercial enterprises, through the activities of clubs and societies, the covenanting of land by private landowners to ensure protection in perpetuity, the leasing of facilities in publicly owned PAs to entrepreneurs, private sector sponsorship of public ownership and management and onto the community management of public lands. The options reviewed range in terms of the extent of private sector involvement and demonstrate that there is the potential to tailor a mix of private and public sector involvement to suit a wide range of circumstances.

2. A Theoretical Justification

2.1 Government Failure

One of the primary driving forces in the privatisation debate is the failure of government enterprises to provide goods and services efficiently. Inflated cost regimes, poor quality of product and service and an inflexibility in rapidly changing economic and social circumstances on the part of public sector operations are important factors in the push toward more private sector involvement.

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A chief reason for the inefficiency of the public sector is the incentive structure which faces its operations and those who work for them. As monopolists without the threat of takeover or insolvency and in some cases, with a perception of the government coffer as a non-depletable source of funding to cover losses, public sector operations have little if any incentive to curtail costs or to satisfy their customers. The management of these operations frequently have as their main motivation the quest for personal power and influence in a system which rewards risk averse rather than entrepreneurial behaviour. The employees are normally not paid on the basis of performance and, where represented by a monopsony union, have considerable power to secure wage increases (Bennett 1991).

The same incentive structure in place for public sector operations in general applies in the government provision of protected areas (PAs) with similar effects: high costs relative to the quantity and quality of the goods supplied and the level of service provided. Yet the pressure for privatisation and increased competition evident in other areas of public sector operations has been largely absent in the nature conservation field. The rationale for this isolation may be the political pressure exerted by conservation lobbyists who are politically orientated toward the left and hence are almost ideologically opposed to private involvement. An alternative explanation is that there is political consensus that if public sector involvement was reduced to enable the private sector to take a greater role, there would be an undersupply of nature conservation benefits as extractive rather than protective land uses would dominate. Both reasons, and others, may contribute to the situation but it is the potential undersupply concern that is the most important to assess.

There is little doubt that some of the benefits of PAs are pure public goods. The existence benefits of species and whole ecosystems, for instance, are joint and non-excludable and present the standard market failure case. Similarly, the biodiversity that is conserved in PAs and their ability to control land degradation are public goods. But other benefits, such as recreation and aesthetic benefits, are potentially excludable¹ and, with congestion, not necessarily joint in consumption, present opportunities for private supply. Because it is often the case that PAs offer a mixture of excludable and non-excludable benefits in joint supply, there is the prospect of public benefits being "piggy-backed" on private supply.

However, even where non-excludable benefits predominate, there may be opportunities for the private sector. There is considerable evidence to suggest that the free-rider response - the root cause of private supply failure in the case of non-excludable goods - is less of a problem than theory would predict. The next section considers the possibility of over-coming free-riding.

2.2 Anti-free-riding

Several reasons can be advanced to explain the empirical evidence that supports the contention that free-rider behaviour is not all pervasive. First is the prospect that altruism motivates individuals to pay for goods and services that are non-excludable (Bagnoli and Lipman). The altruism may be as broad as for society as a whole or may be limited to a persons immediate family. It may be that a person simply gains pleasure from the giving process itself. This is the Androni "warm glow" and has been used to explain some of the extent of donations made to private charity organisations. A whole raft of voluntary activities on the part of individuals and groups can be at least somewhat explained by these motives.

There is also the possibility of peer group pressure forcing individuals to make a contribution to a private group for the supply of a public good. Olson recognised this in his analysis of clubs. He defines a group as "latent", and hence not an active club supplying public goods, when the number of people involved is sufficiently large as to render oligopolistic coercion between members impotent. Under this rule it would be expected to see clubs limited to local community based groups where personal contact is strong. It is clear, however, that large, dispersed groups do form and remain active in the supply of public goods. Olson provides an exception to the impact of large numbers on the latency of a group. "If the members of a latent group are somehow continuously bombarded with propaganda about the worthiness of the attempt to satisfy the common interest in question, they may perhaps in time develop social pressures not entirely unlike those that can be generated in a face to face group" (p.63). The relevance of this point to the case of environmental goods in general and to PAs in particular is unmistakable given the prominence given to these issues in all branches of the media.

¹ The potential for exclusion is dependent on the extent of the costs of preventing unauthorised use of a PA through fencing and/or monitoring users.

Countering both the altruism and the coercion points is the "crowding-out" effect that comes from a long-held expectation that governments will provide public goods. Where governments have provided a public good over a long period of time, the populace come to expect it and find it difficult to accept the prospect of private provision and may feel neither altruistic or easily coerced. Furthermore, where government provision is predominant, private sector competitors will find it difficult to raise funds on the basis of altruism. The response of "that's what I pay taxes for" would be predictable if a call was made for contributions to a competing private operation. This certainly has been a common response when private toll roads have been introduced and collectors for social welfare charities also meet this as a rationale for non-contribution.

The crowding out effect is thus something that is linked to community perceptions of the role of government. For private provision to avoid the effect, it is important for governments to make the limits to their role very clear. For instance, public disquiet regarding private toll roads has been lessened by governments stating that budgetary limitations preclude any further public road construction. Improving traffic flows is therefore perceived as only achievable through private sector action. Similarly, attitudes to charitable donations differ say between the United States and Australia. Donations are a much more significant item in the consideration of the individual in the US where the social security system is less generous than in Australia, despite similar tax deductibility status.

2.3 Joint Supply

It is common to find public goods supplied by the private sector simply because they are joint in supply with a private good. There is generally no need for the public sector to supply restored vintage cars even though it is reasonable to argue that such vehicles provide considerable public good benefits - people like to know that the history of the motor vehicle is kept alive and they also gain some enjoyment from seeing the cars paraded on special occasions. Such are the private benefits enjoyed by the owners of these vehicles that they are supplied to levels that satisfy the demand for their public good benefits. Similarly, there are no regulations to force privately owned department stores to supply special displays of lights and other decorations at Christmas time. Such are the private benefits that the displays provide - primarily in the form of increased business through the crowds

so attracted - that private provision is voluntary, with the public good benefits being incidental to the decision but being provided all the same.

In both the vintage car and Christmas decorations cases, there is sufficient benefit enjoyed by the private sector decision maker to see the jointly produced public goods provided.

Clubs also seek to capitalise on the jointness in production of private and public goods. If a club can establish itself so that membership carries with it some social standing for the individual, then it is in a position where the public good which is its focus can be provided as a joint good. So if membership of a conservation club which funds the purchase of PAs can be made fashionable, the private good associated with the prestige of membership can be used to "piggy-back" the PA acquisition work. Clubs may also seek to establish merchandising programmes to provide some of the benefits of jointness. The private goods sold in association with membership, and under this category can be included discounts or privileged offers available only to members, act as joint products with the public good which is the focus of the groups existence.

The significance of the proportion of total benefits that is excludable is clearly an important determinant of the potential for success that is offered by private provision in any particular case. If say the recreational and aesthetic demands - the so-called use benefits - for a PA are sufficient for a private entrepreneur to be interested in ownership and management, given the costs of excluding unauthorised use, then private provision of those benefits and the jointly supplied public, non-use benefits, is an option. For remote areas which attract few visitors, but which are important for their non-use benefits, or where the costs of exclusion are too high, private ownership may not be viable. But even in that situation, the advantages to be achieved through the incorporation of some private sector elements should not be over-looked. For instance, ownership of a PA may be vested in the state but its management could be contracted out to the private sector on a competitive basis.

The discussion above shows that there are no hard and fast rules regarding the choice between public and private provision when it comes to protected natural areas. There are elements of government failure but there are also circumstances where the private sector will provide an even more inefficient allocation of

resources. Free riding behaviour is not all pervasive, but it does occur. Altruism is unlikely to ensure the Pareto efficient level of supply. In some cases, the strength of excludable goods in the mix of public and private benefits provided by PAs will be sufficient to ensure adequate private provision, but in others it will not. In short then, it is clear that private sector involvement has its advantages and where possible they should be seized. But the style of involvement - and hence the degree of involvement - of the private sector that is optimal is likely to differ from case to case.

An array of possible styles of involvement already exists in various countries around the world reflecting the dynamic nature of the private sector. The array demonstrates that it is possible to configure a mixture of public and private sector involvement in PA provision that is appropriate to the wide range of circumstances that are to be found. In the next section some examples drawn from this array in countries as diverse economically, culturally and environmentally as Australia, New Zealand, Germany and Vanuatu, are detailed.

3. Private Sector Initiatives

3.1 Earth Sanctuaries Pty Ltd

Earth Sanctuaries Pty Ltd is a holding company based in South Australia. It holds a controlling interest in four subsidiary companies - Warrawong Sanctuary Pty Ltd, Buckaringa Sanctuary Pty Ltd, Scotia Sanctuary Pty Ltd and Yookamurra Sanctuary Pty Ltd - all of which operate to supply protected areas to the public. They are all publicly owned companies whose incomes are generated through tourist activities. Visitors to each of the sanctuaries operated pay to enjoy guided tours and in some cases, accommodation on site. The attraction of the sanctuaries to visitors is the chance to view the endangered species that are protected there. This protection is afforded by the eradication and thence exclusion of feral pests from the sanctuaries. Pest exclusion is provided by vermin-proof electrified fences.

The Warrawong Sanctuary, located close to Adelaide, the capital of South Australia, is the longest established of the Earth Sanctuaries. In 1994, it reported an operating profit after tax of A\$42,029, generated from sales revenue of A\$408,881. Total dividends paid to its shareholders in 1993 amounted to A\$23,871. Total shareholder equity as at 30 June 1994 was A\$2,735,684. The more remote Yooka-

murra Sanctuary generated A\$125,080 in sales revenue and A\$8,755 in profits - its first since being formed. The other sanctuaries are still in the early stages of development and incur losses.

The Earth Sanctuary concept has attracted criticism. Warrawong, for example, is only 31 hectares and has been called an extended zoo rather than a protected natural area. Certainly the Warrawong land has been revegetated and the density of wildlife is far higher than would be expected in the true "wild". But it was from the revenue base of Warrawong, and its high public profile, that funds have been generated (both from operating profits and shareholder funds) to enable the concept to be expanded to the other more substantially sized and natural areas. Yookamurra for instance is over 1,100 hectares and Buckaringa is 1,800 hectares.

Criticism has also come from the South Australian National Parks and Wildlife Service (SANPWS). Earth Sanctuaries provides competition to the public sector Parks and Reserves. The following scenario could well eventuate. In order to protect their monopoly position, the SANPWS may choose to invoke their powers to regulate the protection of wildlife to the detriment of Earth Sanctuaries. Earth Sanctuaries is effectively regulated by its chief competitor because its ability to generate income is determined by its ability to display endangered species in their natural habitats to paying members of the public. The supply of those endangered species is closely regulated by the SANPWS. In 1994, permission for Earth Sanctuaries to secure a breeding pair of bilbies to be reintroduced to the Scotia Sanctuary was denied by the SANPWS.

The threat to the orthodox, public sector approach to protection posed by Earth Sanctuaries has also come from claims of greater efficiency in operation. John Wamsley, the founder of Earth Sanctuaries, claims that the cost of the fence around Warrawong Sanctuary was one twenty fifth of a comparable length of fence built at a neighbouring SANPWS operated Wildlife Park (Cleland). He also claims that whilst Warrawong has a higher income, its staff numbers are one tenth those of Cleland (Wamsley, undated).

The amount of natural ecosystem that is currently being protected under the Earth Sanctuary programme is relatively small. The group, however, remains ambitious and has plans to establish a substantial network of sanctuaries. It remains to be seen if these ambitions can be realised, especially given the costs of estab-

lishing vermin free areas. The bottom line is that the rate of return to shareholders on the various ventures may not be competitive with other forms of investment. For capital to be raised it will therefore be necessary for the ventures to rely at least to some extent on investors being willing to forego a top rate of return for the knowledge that their funds are being used for what they regard as "a good cause". The growth of "ethical investment trusts" indicates that there is a substantial number of people who are satisfying when it comes to rate of return, but want an assurance that their funds are being used for purposes they support. In this sense, the warm-glow anti-free riding factor is at work to supplement the profit motive.

To establish the full potential of operations such as Earth Sanctuaries, it will be important for governments to ensure that regulatory bureaucracy is not used to stifle the initiative. The availability of species for re-introduction is a case at point. Another is the planning regulations that must be addressed by a proposal to initiate a sanctuary. Because a sanctuary is defined as a "development", stringent regulatory requirements must be met. In one case, a sanctuary "development" proposal was halted because it was discovered that an endangered species had been observed on the site within the previous ten years. It so happens that the species sighted was the very same one that the proposed sanctuary was designed to protect.

3.2 Australian Bush Heritage Fund

In 1990, a noted Australian environmentalist, Bob Brown, used the A\$49,000 proceeds of his US Goldman Environmental Prize supplemented with borrowings, to buy at auction two areas of Tasmanian forest land amounting to 241 hectares. Prior to the purchase, the forests were to be harvested for woodchips. This was the beginning of the Australian Bush Heritage Fund (ABHF), a private, non-profit company modelled along the lines of Nature Conservancy in the US and the Royal Society for the Protection of Birds in the UK (Templeton). The company is registered nationally and has its own tax deductibility status. 2000 financial supporters are claimed. Donations are sought especially from people who are considering their wills and from corporations that wish to demonstrate their care for the environment.

As well as the Tasmanian properties, ABHF has secured 8 hectares of rainforest in the north of Queens-

land and 120 hectares on the south coast of NSW. Plans to extend the estate are in place, with areas being selected on the basis of advice provided by a Scientific Advisory Committee. That committee also assists in the preparation of long term plans of management for the areas purchased. The ABHF makes it clear that their tenure over the land secures it for protection, "irrespective of the vagaries of government" (ABHF).

The inception of ABHF resulted from the altruism of one individual and its future success will be largely a function of the willingness of others to act similarly. The benefits secured by ABHF are almost entirely non-excludable and so anti-free-rider effects will need to be significant for the organisation to continue. The evidence of their existence in this case is so far not very strong. Apart from the initial purchases, the ABHF estate could at best be described as minor. The move within the organisation to encourage corporate support through the promotion of image building is indicative of an attempt to link a private good with the public good provision role it seeks as its major objective.

3.3 The Australian Koala Foundation

Established in 1986, the Australian Koala Foundation (AKF) is a purely private sector initiative which has as its primary goal the protection of the Koala. The AKF estimates that less than 80,000 koalas are left in the wild and considers that this number is cause for great concern given that at least 4,000 are killed by cars and dogs each year. To achieve its goal, the AKF has raised funds amounting to over \$3m through a variety of sources. These include private individual and corporate donations but also involve the profits from a number of AKF business enterprises. The AKFs Environmental Division provides environmental consulting services, is involved in a photography business, has a merchandising operation but perhaps most significantly, has a growing interest in "eco-tourism" ventures. Currently, the AKF organises and conducts tours in four Koala sanctuaries for predominantly Japanese tourists.

Funds raised by the AKF are directed primarily to research aimed at koala protection. Approximately \$1m have been spent on research projects since 1986. Political lobbying and educational activities are also undertaken by the Foundation. The organisation does not own land and its current policy does not involve any plans for using its financial reserves for land acquisition. It is recognised, however, that there is a

strong prospect that the organisation will become a land owner through bequests.

Rather than taking on the burden of land ownership and management, the AKF policy has been to encourage and assist private sector land owners to set aside areas of their properties as koala sanctuaries. For instance, in one project currently under review, a land developer has sought AKF assistance in the planning of an urban development in a koala habitat. The proposal being considered is to use one third of the total development area for housing with the remainder being set up as a protected area. Conditions will be imposed on residents of the new estate to enhance the compatibility of the housing development with the koala habitat. For instance, dogs will be prohibited and vehicle speed limits imposed. A residents levy will be used to fund an AKF officer to patrol the area, both to protect the koalas and to provide residents with enhanced security.

In this case, the private incentives for the protection of the koala habitat may be at least three fold. First, the demands of people who wish to live in a bushland setting where koalas are present is tapped by the developer. Second, it may be that only through the careful design of an "eco-sensitive" plan - one that does not involve the destruction of the koala population in the area - that any development will pass through the regulatory requirements of the governments involved. Thirdly, the developer may have a personal desire to see the environment of the area protected in a way that still allows for profit.

The draw back of this approach is that there is no long term security established for the protected area such as would be provided if the AKF was the owner of the land. The position taken by the AKF is that local government regulations controlling the protected areas status, coupled with a predicted outcry from local residents (who would have paid not only for their own land but also its surroundings) would be sufficient protection in the event of a move to extend the housing proportion of the overall development area.

3.4 New Zealand Native Forest Restoration Trust

The New Zealand Native Forests Restoration Trust (NZFRT) was founded as an incorporated trust in 1980. The aims of the Trust are to:

- protect and restore degraded forest and to increase the chances of survival of threatened native bird species through the purchase of land for declaration as reserves,
- plant trees on publicly owned reserves; and
- work in co-operation with government conservation agencies and other conservation groups.

The Trust currently owns six reserves. The future status of the Trust properties as protected areas is secured for donors through title covenants arranged by the Queen Elizabeth the Second National Trust. The NZFRT seeks funds for specific projects through donations but also requests individuals to provide interest free loans for a twelve month period to reduce the debt burden on funds borrowed to secure property. The NZFRT also organises interested volunteers in tree planting exercises and management tasks within their reserves.

Like the ABHF, the NZFRT operates on anti-free-riding incentives, and has been relatively successful in securing a portfolio of high conservation status properties. It has secured tax deductibility status but is structured as a trust rather than a corporation.

3.5 Clubs and Societies

Similar motivations drive a substantial number of clubs and societies.

New Zealand

The Royal Forest and Bird Protection Society of New Zealand (RFBPS) is one example. With a membership of 55,000, it is involved in the purchase of land to be declared as reserves at the level of the regional branches. For instance, the Wellington branch has established two forest reserves and two marine reserves. Across New Zealand, the Society owns approximately 1,000 hectares. In addition, the Society is involved in co-operative work with the NZ Department of Conservation. In the Wellington branch for example, the Society organises working parties to carry out works such as the construction of hides and pathways, the eradication of feral pests such as rats and mice from off-shore island reserves and revegetation.

Membership, and hence the provision of the public good of forest and bird protection, is encouraged beyond altruism through the provision of some private goods. Two magazines are published by the Society for its members. In addition, the RFBPS owns lodges at scenic locations around New Zealand for the use of its members. These lodges have, through time, been gifted to the Society. An extensive catalogue of goods is also marketed by the Society.

There is a movement away from the strong emphasis on the hands-on approach of reserve purchases and voluntary work parties within the RFBPS. More emphasis is being given to the lobbying operations of the organisation. The basic logic behind this shift is that scarce Society funds gain a better return from lobbying than direct action. The leverage that can be secured on the public purse through rent-seeking behaviour is the incentive involved.

Australia

The main line conservation clubs in Australia have tended to follow the lobbying approach as their principle focus. However, there is a substantial number of relatively small societies that play a more direct role in the protection of ecosystems. These organisations tend to be focused on specific areas in the immediate vicinity.

Germany

The focus of conservation based clubs and societies in Germany is much more strongly directed toward land ownership and other forms of direct involvement. The Bavarian Nature Protection Association (the BN), for instance, currently owns approximately 1,100 ha and leases a further 700 ha, allocating in the order of DM600,000 to DM800,000 (out of a revenue base of DM10m) annually to the task. Whilst it is a smaller organisation, the Bavarian Bird Protection Society (the LBV) is even more heavily oriented toward land acquisition. Out of its annual revenue base of DM3.5m, it allocates about DM650,000. It currently controls an estate of 1,600 ha. Both organisations are able to leverage their funds for land purchases through the provision of support funding by government (Bennett 1994).

Not only are these German societies effective in raising funds for the purchase of land for nature protection, but they also manage their estates. Both organisations rely on members to provide voluntary

labour for management tasks, although some of the non-labour costs of management are subsidised by the government. The LBV in some cases leases back land it has purchased to farmers who contract to manage the land in a manner that is compatible with the LBV's goals. Unlike the BN, the LBV encourages its members and the public to visit its reserves (except where the ecology is especially fragile) by providing guided tours and/or information boards.

Discussion

The success of these societies is largely due to their organisational structures. A relatively small central co-ordinating headquarters is combined with a host of sub-groups that provide the focus of most activity. This structure means that despite their overall size, the clubs operate essentially as small groups thus enabling the mobilisation of peer group pressure to motivate their members for action and to discourage free-riding behaviour. A personal pride in achieving goals is encouraged by assigning responsibilities for particular tasks to specific groups. The practical focus of group activities has proved to be an attractive feature of membership.

3.6 Covenanting

Private landowners seeking to protect in perpetuity an area of their property that they consider to be worthy of protection can do so by arranging a covenant over the land's title. The process of covenanting has been facilitated in New Zealand through the operation of the Queen Elizabeth II National Trust. The Trust was established under an Act of Parliament in 1977 and receives an annual grant from government as well as donations. In 1993, a total of 661 covenants had been registered covering 25,162 hectares. It also owns a small estate of property, either gifted or bequeathed, valued at NZ\$1,461,883. The Trust works in co-operation with organisations such as the RFBPS to covenant any properties they purchase in order to ensure perpetual protection.

The Trust assists in the covenanting process through the provision of surveying and legal services and also makes funds available for the fencing out of covenanted land (to exclude stock). Furthermore, landowners are given some incentive to covenant land through reductions in rates paid to local government and are assisted in maintaining fences.

Access to the areas for the general public is a matter for the landowner to consider. The permission of the landowner is required for any visit, but 80 per cent of covenanted land is accessible. Some private owners are encouraging paying visitors in eco-tourism ventures and some co-ordination for visits to multiple sites is being initiated by the Trust.

The Victorian Conservation Trust in Australia has a similar covenanting role. It is an independent body founded in 1972. Its mission is to encourage and assist nature conservation in Victoria particularly on private land. It relies upon government grants, fund raising and donations for its success and has acquired about 100 properties and set up covenants on 11,000 hectares. Another objective of the Trust is the establishment of a A\$2m "revolving fund" to be used for the purchase of important conservation land which would be rehabilitated and then sold on with a conservation covenant. The goal is to protect 20,000 hectares by the year 2000 under this mechanism (Forge).

A special form of "covenanting" has been used to protect tropical forests in Vanuatu. Pressure for native land owners in Vanuatu to sell the rights to log their forests to foreign timber companies has been growing in recent years. Such has been the extent of this pressure that in some cases, land owners have sold their rights only to be regretful once the impacts of the logging operations have been experienced. However, with a better understanding of the benefits and costs of logging, land owners on the island of Malekula have set aside some protected areas. An institutional framework which, through legislation, will prevent logging from taking place in the areas designated as protected is currently being established (Tacconi).

A variant of the Malekula approach has been implemented in an area of Kauri forest on the island of Erromango. Whilst in Malekula, there are sufficient private benefits from the establishment of protected areas to see the local land owners volunteering to enter into a covenant, in the Erromango Kauri forest, there was insufficient local incentive to protect the forest to counteract the attraction of the royalties that could be earned from logging. Hence, an agreement was negotiated between the land owners and the Vanuatu Forest Department to set up an agreement that prevents the logging of the forest in return for a lease payment. Part of the negotiation process involved demonstrating to the land owners that the lease payment would match the extent of the logging royalties (Tacconi and Bennett).

Funds for the Erromango Kauri Reserve lease were provided by the European Union. However, Flatley and Bennett indicate that tourists to Vanuatu are willing to pay well in excess of the amount required to fund the lease for forest protection projects. The longer term prospects for the private funding of leases of the kind negotiated for the Erromango Reserve would appear to be good.

4. Conclusions

It has been shown in this paper that the private sector can play a role in the provision and management of protected natural areas which varies from substantive to minor. The diversity of situations in which the private sector can play a role has been demonstrated by the variety of economic, social and environmental conditions evident in the four countries used as example sources.

The extent and nature of the role to be played by the private sector should be determined by the particular circumstances presented in each case. Whilst the diversity of circumstances evident even within one country calls for a case by case approach, some overall rules can be established to assist in the process.

The first guideline should relate to the extent to which excludable goods and services are provided jointly with the non-excludable benefits of nature protection. In this respect, important considerations should be the "popularity" of any area as a tourist site, the degree to which visitation is compatible with the public good benefits and the costs of exclusion. In terms of popularity, proximity to population centres and the public appeal that is held by an area will be important determinants. For example, a PA located within 100 kms of a population centre featuring scenic beauty and/or a point of specific interest such as an attractive or rare species will be a likely candidate for private ownership and management on the proviso that visitation can be managed to maintain the features of interest to visitors as well as the public good benefits provided. To ensure that, policy makers may wish to impose covenants on the title that preclude or limit certain activities. With this guideline in mind, there are a number of Australian and New Zealand National Parks that could be privatised.

The Vanuatu examples demonstrate that recreation will not be the only excludable good that can be provided jointly in a protected area. The owners of the land may enjoy the benefits of nature conservation

sufficiently to see areas protected. The various covenanting schemes in Australia and New Zealand are also evidence of this.

Where the excludable benefits of a PA are insufficient to generate enough demand to cross-subsidise the jointly produced public goods, a different mix of private/public sector involvement will be required. Public ownership may be the only way in which such reserves are protected. However, private sector involvement may still be an option. If there are sufficient excludable benefits to ensure a profit for a private management operation to show an interest, the rights to manage the PA may be auctioned, given again restrictions on activities allowable in the terms and conditions of the management contract. Where the private benefits are even smaller - for instance in the case of a remotely located PA that has been established to protect something which does not capture much tourist interest (say soil microbes for example) - public ownership will be necessary and the government may wish to call for tenders from the private sector to manage the reserve. That is, the government will pay for the management operation.

The second guideline for determining the public/private split will involve an assessment of the anti-free-riding forces that are present. Where a protected area is adjacent to a community which has a specific interest in the public good the PA offers, it is likely that coercive forces will act to ensure the establishment of a local management and even ownership organisation. Government can play an important role in facilitating this process. Clear statements about government intent can limit the crowding out effect on the private sector. Where ownership is to remain with the government, facilitation of community management trusts through the setting up of appropriate legal structures and the provision of expert management advice will be important.

Capturing the willingness of individuals to act in the interest of the whole community should be another goal of government policy. Reducing the red-tape requirement for covenanting, the reconsideration of planning laws as they relate to private reserves and the introduction of an independent agency (ie not a supplier of PAs) specifically to regulate the availability of rare species would be important moves in this direction. Again, a clear statement by government that the private sector will be an important contributor to the supply of nature conservation areas - and perhaps more importantly, that it will not be hindered by

the bureaucracy in that contribution - is perhaps the most significant action that government can take.

The range of private sector initiatives in the provision of PAs that has been displayed in the four countries from which the examples used in this paper are drawn, is indicative of the potential that a "mix and match" approach to the public/private supply of nature conservation benefits affords. Given the advantages that more private sector involvement can offer the community as a whole, a shift in government policy that would allow a greater role for individuals and corporations is advisable.

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