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VALUATION OF INDIGENOUS FISHERIES

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The Mabo [no. 2] 1992 High Court decision and consequent judicial and legislative actions resulted in a quantum shift in the recognition of Indigenous rights in Australia. The Croker Island 1998 decision verifies the existence of native title rights to the foreshore and marine environment. Methodologies for valuing Indigenous fisheries are examined in this report. Unlike those for non-Indigenous uses of fish resources, the methodologies for Aboriginal and Torres Strait Islander uses are poorly developed. This is because the legal and institutional framework for Indigenous rights are still being developed and because this area of economic concern has received minimal attention from economists.

While a number of steps are taken in this report to facilitate the valuation of indigenous rights to fish resources, the continuing inadequacies in valuation methodology emphasises the importance of negotiation in valuation estimation.

A report to the Technology Management Centre at the University of Queensland &
the Fisheries Research and Development Corporation December 1998

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Valuation of Indigenous [1] Fisheries

Introduction

The *Mabo [no. 2] 1992* High Court decision and consequent judicial and legislative actions resulted in a quantum shift in the recognition of the rights of Aboriginal peoples and Torres Strait Islanders, while the *Croker Island 1998* decision verified the existence of native title rights to the foreshore and marine environment. These ongoing changes create circumstance in which the transfer and trade in rights to fish resources between Indigenous and non Indigenous people can be mutually beneficial. Economics offers a mechanism to do this so that the social benefits of resources are maximised.

Methodologies for valuing Indigenous fisheries are examined in this report[2]. Unlike those for non-Indigenous uses of fish resources, the methodologies for valuing Aboriginal and Torres Strait Islander uses are poorly developed. This is because the legal and institutional framework for Indigenous rights is still being developed and because this issue has received minimal attention from economists. In this report, the framework for valuing Indigenous fisheries is extended to show the economic characteristics of the benefits obtainable from indigenous rights and possible methodologies to estimate value are assessed.

Background

The nature of the Indigenous relationship

The close relationship of Aboriginal peoples and Torres Strait Islanders with the sea is well documented. The most recent of these include (Chapman 1997), Meyers et al (1996), Peterson and Rigby (1998), Sharp (1996, 1997), Smyth (1997), and Sutherland (1996, see pp.

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[1] The term 'Indigenous', with a capital 'I', refers to 'Aboriginal peoples and Torres Strait Islanders' and these two terms are used in conjunction.

[2] The possible valuation methodologies assessed in this report are covered in greater detail by the other reports prepared for the FRDC project: *Framework for Valuing Fisheries Resource Use*, particularly the papers by Blamey (1998) and Carter and Wilkes (1998).

7-11 for a review of the earlier literature),

The texture of this relationship can be complex, as shown in Sharp's (1997) description of the relationship of the Meriam people's relationship with the sea around Mer (Murray Islands). Sea holdings are described as similar to land holdings and exist on the basis of four principles:

> '*firstly, land-sea properties are inherited as a sacred trust first and foremost through the spoken word; secondly, these rights, which are vested in the elder male, entail complementary responsibilities to other kin; thirdly, they form an interrelated whole with a living habitat which is part of culture (not nature); and finally, the religious and economic aspects are inseparable, thus neither sea nor land is seen simply as a resource. The Meriam people carried out investments and improvements in the sea including extensive stone fish traps, unique little crayfish houses out of coral outside their home reef; who honour a child's first fish catch with a personal feast; whose totems are sea creatures, sea flora and sea birds; where sea analogues form the texture of their thought; and who travelled northwest to the island of Saibai in double outrigger canoes for ceremonial exchange and trade'* (p. 29).

Recognition of Indigenous rights

Since European settlement in 1788 and the fiction of *terra nullius* or vacant land, the major legal decisions and legislative acts concerning the recognition of indigenous rights of Aboriginal peoples and Torres Strait Islanders at a national level are the[3]:

- *Racial Discrimination Act 1975* which guarantees that no one shall be disadvantaged on the basis of race;
- *Mabo [no. 2] 1992* high court decision determined the Meriam people to have pre existing common law native title rights to land above the high water mark;
- *Native Title Act 1993* regulates the recognition and protection of native title rights. Provision was also made for recognition of native title claims

[3] The Queensland Government publication '*Native Title and the pastoral Industry*' presents a good review of the effect of native title from the perspective of another primary industry. The similarities existing between the *Wik* and *Croker*

to the sea;

- *Wik High Court 1996* decision establishes the coexistence of native title with pastoral lease rights;
- *Croker Island Federal Court 1998* (6 July 1998) decision recognised the Croker Island community to have pre existing common law coexisting native title rights to the sea from the high water mark and to the sea-bed of the claimed area from the low water mark; and
- *Native Title Amendment Act 1998*, confirms government powers to regulate marine areas and resources, the requirement of compensation in 'just terms' for all future acts in addition to those performed by the Commonwealth, and sets a cap on the amount of compensation payable.

By April 1998 the National Native Title Tribunal had received native title applications from Aborigines and Torres Strait Islander people to 140 locations that included areas of sea[4]. Of these, 73 were in Queensland, 35 were in Western Australia, 5 were in South Australia, 11 in the Northern Territory, 11 in New South Wales, 3 in Victoria, 1 in Tasmania**,** and 1 (Jervis Bay) in the Commonwealth.

Recognition of sea country under the *Native Title Act 1993*

The *Native Title Act 1993* recognises the possible existence of native title to sea and coastal country and the preconditions for recognition to occur. According to the *Croker Island 1998* decision[5], communal native title exists in relation to the sea 'which washes

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Island decisions are worth noting.

[4] Based on data supplied by Geospatial Information, NNTT. Sea includes any waters seawards of the mean high water mark.

[5] An appeal to the *Croker Island* decision has been lodged by the Northern Land Council for hearing by the Full Bench of the Federal Court in 1999. The grounds of the appeal include:

- the Court misconstrued the evidence and that the exclusive nature of the traditional rights apply to both Aboriginal and non-Aboriginal people; ie., that the native title includes exclusive rights of possession etc to areas of sea;
- the native title rights, on the evidence (of pre-colonisation Macassan trading) includes a right to trade in the resources of the sea;
- the native title includes the rights to minerals; and
- the native title is not subject to the public right to enter waters and fish, public rights to navigate, or international right of free passage (information supplied by the Northern Land Council November 1998).

The Commonwealth also appealed the decision on the grounds that Olney J erred in finding that native title rights and interests can be recognised in relation to the sea.

the shores of the relevant land masses', and sea-bed within the claimed area, in compliance with traditional laws and customs for any of the following purposes:

> *'(a) fish, hunt and gather within the claimed area for the purpose of satisfying their personal, domestic or non-commercial communal needs including for the purpose of observing traditional, cultural, ritual and spiritual laws and customs;*
>
> *(b) have access to the sea and sea-bed within the claimed area for all or any of the following purposes:*
>
> > *i) to exercise all or any of the rights and interests referred to in subparagraph 5(a);*
> >
> > *ii) to travel through or within the claimed area;*
> >
> > *iii) to visit and protect places within the claimed area which are of cultural or spiritual importance;*
> >
> > *iv) to safeguard the cultural and spiritual knowledge of the common law holders' (p. 161 iii (a)-(d) as amended by Olney J 4 September 1998).'*

Native title gives a right to take fish and shell fish without the need for a fishing licence or entitlement in those locations in which the native title applies. It does not give a right to take fish without a licence or entitlement in those areas in which an Aboriginal or Torres Strait Islanders does not hold a native title right.

The *Croker Island 1998* Federal Court decision established that exclusive native title can only extend to the territorial limits of the State or Territory. In most, but not all cases, the State or Territory limit is established by the low water mark. Territorial limits can also extend over waters within gulfs, bays, between islands and the mainland, and between islands, when the waters occur within the Australian territorial base line. This was the basis for the Federal Court to rule that the waters of Mission Bay (which was part of the

Croker Island native title claim) are within the territorial limits of the Northern Territory (*Croker Island 1998* s. 51).

The Federal Court also ruled that when inconsistencies exist between native title and other rights, native title rights must yield or give way to all other legal rights and interests in relation to the sea and sea-bed. In some cases, Aborigines peoples and Torres Strait Islanders may qualify for compensation for the loss of rights depending on when the acts or actions resulting in the loss of rights occurred.

Following the 1998 amendments, the *Native Title Act 1993*, native title is limited to the landward side of the mean high-water mark of the sea (s. 26(3)). There is some ambiguity as to whether this clause is consistent with the *Racial Discrimination Act 1975*.

Other Acts and policies

A number of Acts bear directly on the ability of Aborigines and Torres Strait Islanders to carry out traditional activities relating to fish and marine resources. Many of these Acts are in response to aspirations of Indigenous peoples to have their traditional knowledge and concern with natural resources respected through their participation in management regimes (see Sutherland 1996). Acts, in addition to the *Native Title Act 1993*, provide recognition of Indigenous rights to fish resources, including the *Fisheries Act 1995 (NT)* , the *Aboriginal Land Rights (Northern Territory) Act 1976*, and the *Torres Strait Fisheries Act 1984.*

Under the *Aboriginal Land Rights (Northern Territory) Act 1976*, claimable land extends to the low water mark, and may include those reefs and sandbars observable at low tide. The Northern Territory administrator may close the seas adjoining and within two kilometres to any person other than those having an indigenous right to enter the area (*Aboriginal Land Act 1978 (NT)).* Such closure does not confer any right of tenure to those with an indigenous right to enter the area. The *Fisheries Act 1995 (NT)* allows a restricted community license to take fish and sell fish within the community.

Currently, under the *Torres Strait Fisheries Act 1984*, indigenous Torres Strait Islander people:

- and indigenous people from Papua New Guinea and Australia may take catch as traditional fishers for their own use in both Australian and Papua New Guinea waters;
- from Australia may partake in community fishing, which gives a restricted right to catch and sell fish within the community; or
- from Australia may fish using a commercial entitlement. The intention of the Australian Fisheries Management Authority, which administers the Torres Strait, is to combine the community fishing and commercial fishing entitlements by 1 April 1999.

In addition, some people from Timor have an indigenous right to fish in the waters of Ashmore Reef in northwestern Australia.

Policy documents

Many State, Territory and Commonwealth fishery management authorities have developed policy papers that are available to public review. For the States and Territories these include the papers by Harding and Rawlinson (1996), Loveday (1998) Pyne (1997), and the QCFO (1996). Several papers have been written on this area from a Commonwealth perspective, including those by Sutherland (1996) and Smyth (1997). In addition, a number of authorities employ officers with full time responsibility for Indigenous fish resource use issues and to address questions dealing with the accommodation of native title within their jurisdiction. A number of papers have been published to keep commercial fishers informed of the expected effect the *Mabo [no. 2]* decision may have on access to and use of fish resources (eg: Beckinsale, 1997, Boileau 1997, Haines and Carpenter 1998).

When is valuation likely to be required?

Interactions with other users

The cultural relationships of Aboriginal peoples and Torres Strait Islanders with the sea are often carried out against a great many competing interests conducted by the wider community (Smyth 1997). In particular, all marine activities have the potential to invade the privacy of marine and coastal land owning groups, and effectively limit the opportunities for Aboriginal peoples to maintain traditional practices.

Those marine activities with a potential to impact on Aboriginal and Torres Strait Islander practices include:

- commercial fishing, including prawn, reef, and inshore fishing;
- recreational fishing and recreational boating;
- commercial tourism, including reef trips and diving tours;
- marine park zoning and management; and
- commercial port operations and shipping lanes.

While many of these activities from time to time come into direct conflict with Aboriginal and Torres Strait Islander resource use and management practices, the effect can also be indirect. For example, changes in fishery management requirements can directly or indirectly impact on fish stocks and the marine environment. Such changes can therefore affect a marine or coastal community's ability to fish, hunt, gather and meet the cultural responsibilities to the management of resources and the environment.

Non Indigenous access

The use of fish resources by other than Indigenous peoples includes commercial, recreational and conservation uses. Some initial steps have been taken to integrate non Indigenous and Indigenous concerns with the protection and conservation of sea animals and plants. Instances of this include the participation of Aboriginal peoples and Torres Strait Islanders on a limited number of fishery advisory bodies.

Access to fish resources is important to recreational and commercial fishers including aquaculturalists. Recognition of native title to sea and foreshore areas could be important to future commercial fishery management Acts and regulations and industry operations. Uncertainty over outcomes for existing and future claims can place a level of uncertainty on investment decisions of commercial fishers and managers, and commercial tourist operators. For instance, does the increasing use by recreationalists and commercial fishers to the sea and foreshore areas qualify for compensation to holders of rights under the *Native Title Act 1993*[6]?

[6] The existence of native title rights seems to imply that any diminution of those rights would lead to compensation for that loss.

A range of uncertainties and issues follow from the *Croker Island* decision, including access for ancillary activities on land, that native title decisions can have different effects on different fishers in the same fishery, even though their licences are the same (see Loveday 1998 pp. 2-3). In many cases the effect of recreational and commercial fishing activities on Indigenous rights will be difficult to identify and quantify.

According to *Native Title Act 1993 (*s.26 (3)), a requirement to negotiate in good faith with native title holders does not apply to the waters and sea bed to the seaward side of the mean high water mark, including the inter-tidal zone, except in the establishment of infrastructure. Such infrastructure includes the establishment of ports and jetties, but does not explicitly preclude aquaculture infrastructure, such as that required for oyster production. As a result, aquaculturalists may still need to negotiate access in those locations in which Indigenous rights might apply, depending on the basis in which recognition of the rights exist.

Likely reasons for valuation

What is included in the valuation of fish resources used by Aboriginal peoples and Torres Strait islanders depends on the expected use of the valuation results. That is, whether the purpose of the valuation is to do with maximising the social benefit of fish resources, compensation for loss of rights, access to resources, or the voluntary sale of rights to another party.

Maximisation of the social value of fish resources depends on the alternative uses of the resource regardless of who holds right to the resource. In all other cases, the valuation of Indigenous rights to fish resources will depend on legislation and the recognition of rights under common law.

Maximisation of social value

Maximisation of social value is when value is assessed so as to allocate fish resources between competing users and uses with the intention of maximising the social benefits from resource use. Such valuation need not depend on the ownership rights. Such valuation does not depend on the distribution of property rights

Compensation

The basis for compensation is derived from s51(xxxi) of the Australian Constitution, which requires the acquisition of property by the Commonwealth to be on 'just terms'. The requirement for all States and Territories to pay compensation on the same basis comes from the *Native Title Act 1993*.

Grounds for compensation will occur as a result of the impairment, or extinguishment of recognised Indigenous rights. According to the *Native Title Act 1993*, such grounds can be viewed according to whether the actions involve 'past acts (Acts or actions)' or 'future acts (Acts or actions)':

- Past acts are those rights lost due to an act taken since the passing of the *Racial Discrimination Act 1975* and prior to July 1993 for a legislated Act, or before the 1 January 1994 for any other act, including, 'intermediate period acts' (*Native Title Act 1993* s. 4(5)), that have arisen in response to the *Wik High Court Decision 1996*.

- Future acts are those legislative acts that take place after July 1993 and any other action that takes place on or after the 1 January 1994. Under the *Native Title Act 1997*, all acts offshore are permissible future acts.

Compensation for past and future acts is according to the conditions set out in division 5 of the *Native Title Act 1993.*

The 1998 amendments to the *Native Title Act 1993*, caps the level of compensation at ' for an act that extinguishes all native title in relation to particular land or waters must not exceed the amount that would be payable if the act were instead a compulsory acquisition of a freehold estate in the land or waters' (s 51A). From an economic perspective, this clause raises a number of questions and possible inconsistencies, adding to the uncertainty surrounding the *Native Title Act 1993*. These include:

- what is included or excluded in freehold value, when applied to native title

rights[7];

- pending what is included in freehold valuation when applied to native title, those whose loss is within the cap placed on the valuation of indigenous rights may be treated better than those whose loss exceeds the cap;
- the application of the cap only being applicable on the extinguishment of all native title can create a basis for strategic behaviour;
- whether the losses incurred by the introduction of the cap is a compensatable act; and
- whether compensation paid on this basis is consistent with 'just compensation', under the constitution?

Sale or purchase of recognised rights.

The conditions in which Aboriginal peoples and Torres Strait Islanders can sell or lease their rights to fish resources are constraining and do not compare to those conditions envisaged in a perfect market. For instance, limits on negotiation[8] and the requirement that the indigenous rights held by Aboriginal people and Torres Strait Islanders are inalienable rights and can only be surrendered to the crown, removes 'exchange' from a perfect market free exchange. Therefore, *most transfers of Indigenous rights will involve compensation*. Such compensation, however, is still a payment for rights given up, lost or transferred. Valuation of Indigenous rights, in this case, depends on the recognition and holding of rights.

Economic characteristics

Resource rights are discussed in this report in generic rather than specific terms. As a result, benefits are discussed in terms of their consumption or consumable characteristics, rather than the physical characteristics of the resource. This approach parallels Lancaster's (1971) developments in consumption theory, with the focus on the importance of the attributes of a consumable item. This level of abstraction allows the results of this paper to be applied to a broad range of circumstances. This is necessary

[7] Compensation to freeholders can include payment for value lost or costs incurred as a result of compulsory acquisition.

[8] Although native title land rights and interests can be acquired voluntarily by means of an indigenous land use agreement, the lack of symmetry in negotiation strength precludes a willing seller.

because of the variability in the indigenous rights that may be attributed to Aborigines and Torres Strait Islanders and the high possibility of changes to these rights. The legislative complexity that applies to the recognition and administration of Indigenous rights is compounded by the 1998 amendments to *Native Title Act 1993*. This is particularly likely to be an outcome of the States and Territories being allowed to introduce their own alternative legislation and provisions under the Act. The generic approach also accommodates different possible bundles of rights and the different forms in which rights may be held, including co-existing and exclusive native title rights.

Rights

Granted and recognised property rights define the range of privileges and responsibilities of right holders to specific assets, such as parcels of water, intertidal zones, reefs, and fish. Generally, rights can be viewed either as legal rights and/or as economic rights (Barzel 1997).

Legal rights

In general terms, legal rights involve what has been assigned to a person, group, organisation or jurisdiction by the state, or marine and coastal land owning group through legislation, custom, indigenous law or other means. Provision of legal rights occur as a result of formal arrangements, including constitutional, statutory, judicial rulings or as part of an organised system of indigenous law, and informal conventions and custom[9]. The nature of property rights will affect the decisions made in regard to how resources are used and to the net social benefit enjoyed by society from fish and other resources.

Economic rights

Economic rights depend on the enforcement of legal rights and consist of the right holder's ability to enjoy benefits from a piece of property. That is, economic rights include the ability to enjoy benefits either directly through consumption and cultural appreciation, or indirectly through exchange, including barter, sale, rent, inheritance and gift giving[10].

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[9] The *Native Title Act 1993* sets out a system involving different levels of formal and informal arrangements in which the indigenous rights of Aboriginal and Torres Strait Islanders might be recognised under common law. The *Croker Island* decision confirms the extension of this system to claims over sea.

[10] Gift giving is somewhat of a misnomer as it usually involves defined elements of exchange (see Altman (1987).

Variability in rights held

The *Croker Island 1998* decision determined that Aborigine people around Croker Island do not hold exclusive rights to fish resources. Instead, they hold a bundle of rights that coexist with the rights of others. The content of the bundle however, is likely to vary from place to place according to the conditions set out in the *Native Title Act 1993* and the consequences of other legislation, executive orders and indigenous rights.

Economic value

While many of the rights held by Aborigines and Torres Strait Islanders may not be traded in the market, they are not precluded from having economic value. The lack of trade does not preclude Aborigines and Torres Strait Islanders from treating the benefits of these rights as economic goods (North 1981). Economic value occurs as a result of preferring an item, relative to some other item, and the willingness to go without one item in preference to more of the other item (Lee 1980, p. 12)[11]. For example, members of a family group might decide they prefer more finfish to shellfish. As a result, they might make the decision to forego the collection of shellfish and spend the rest of the available time in fishing. In this case, what is being given up is the expected take of shellfish for an expected catch of finfish.

A number of economic characteristics, important to the measurement of economic value, can be drawn from this definition and the above example. For instance, how many and how much of an item is available depends on the existence and enforcement of legal rights as well as resource characteristics. The benefits accruable from these rights can be viewed in economic terms as a budgetary constraint, where the constraint limits the choices available. Costs are incurred in realising the benefits from these rights that is the amount of time given up to collect shellfish, or the quantity of finfish that might have been collected.

Indigenous communities, groups or individuals will make decisions on how they allocate their budget between different items. If all else is equal, these decisions will depend on

[11] The existence of relative value between all goods depends on the consumer preferring more to less, being able to rank all items according to preference, and being able to compare the preferences over all items — that is that

the relative value placed on the respective items. Communities and individuals wishing to maximise their benefits, will allocate their budget resources between different uses so that the additional benefit from any one use equals the benefit foregone. This is what is meant by the economic phrase, ‘economic optimisation requires equating marginal costs too marginal benefits’.

The joint nature of Indigenous benefits

Difficulties exist in valuing the rights of Aborigines and Torres Strait Islanders to fish resources because the intertwining of material uses with a community's culture, spiritual laws and custom means these sources of value are difficult to disagregate.

For land valuers (eg, Whipple 1997, Sheehan and Wensing 1998), the valuation of those indigenous rights recognised according to common law, is on the basis of freehold value plus something of ‘special value to the owner’. In this case, the ‘something’ is meant to account for the cultural benefits. Whipple argues that the value of ‘something’ is best decided by the courts on the basis of testimony by expert witness. Sheehan and Wensing do not believe this is the role of the courts. Instead, they argue that special value can be assessed using existing freehold valuation approaches. They suggest the use of judicial discretion or a 'solatium’ value, to account for the additional disruption caused by the loss of rights. Such a payment, however, should be in addition to any compensation for loss of cultural benefits.

Lavarch and Allison (1998) question the use of the assessment of ‘special value to the owner’, arguing that this term, as used by land valuers, constrains what can be included. They argue that, because there is no market for native title, only the holders of the recognised Indigenous rights are in a position to know what the value of these rights is to them[12]. However, Lavarch and Allison also state they expect the courts will rule on how valuation of Indigenous rights should occur[13]. One suggestion has been to use an

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preferences are transitive. The outcome of agreements made to date indicate that these assumptions are met.

[12] There are risks of strategic behaviour in using self valuation (see the section: ‘Contingent valuation method’). Aside from this, the lack of a market for cultural rights does not necessarily preclude other means of economic valuation.

[13] Such decisions can not be left solely to the guidance of the courts. Cummings (1991) and Duffield (1997) give examples of the courts appearing to have been at error when making rulings concerning economic value. Cummings and Harrison (1994) comment on a Ohio court ruling regarding the preferred use of contingent valuation methodology. Courts can only arrive at a decision on the basis of what is put before it. It is clear that the argument put before the court must be based on sound economic reasoning, for the risk of

approach similar to that used in cases involving compensation for personal injury, where ompensation is based on personal loss.

Land valuers have taken important steps in the valuation of recognised Indigenous rights. However, the suggestion by Whipple (1997) and Sheehan (1998) that existing land law 'provides an irresistible framework for the valuation of native title' is too restrictive.

Private benefits & public benefits

The benefits of recognised Indigenous rights to fish resources may occur as *jointly*[14]*as* private benefits and public benefits. Whether private benefits or public benefits are involved, is important to how the benefits are summed. Private benefits occur when the benefits are exclusive to one person and unavailable to another; eg., the direct nutritional value from eating fish is restricted to the consumer. Public benefits exist when other members of the marine or coastal land owning group can not be excluded from their enjoyment. As a result, others can enjoy the benefit without affecting the amount of benefit available to others; eg., a group's enjoyment of place and the totemic significance of particular species, such as dolphins and turtle. This intertwining of material and cultural benefits from the utilisation of rights constitutes the joint supply of private and public benefits that can be inseparable. The literature on the joint supply of private and public goods is summarised in Cornes and Sandler (1996)[15].

The benefits enjoyed by Aboriginal peoples and Torres Strait Islanders from indigenous rights is from the consumption of material and non material uses or benefits. Because non material benefits are likely to be mostly cultural in nature, the terms 'material benefits' and 'cultural benefits' are used in this paper. Whether private benefits or public benefits are being enjoyed depends on the use made of the rights, with public benefits being

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error is to *be minimised and that the development of strong economic argument is not the responsibility of the court.*

[14] *When it is not possible to separate the benefits obtained from a right, then the expected benefits from that right can be described as joint benefits.*

[15] The literature on impure public goods refers to the supply of public goods as a result of individual supply and consumption of private goods. Because the supply of impure public goods is expected to increase with expenditure on private goods, the supply of impure public goods are therefore likely to increase with increasing individual's budget. As a result, modelling this relationship can be very complex, because the private benefits enjoyed to the individual consumer do not equal the total benefits of their supply. This complexity is circumvented in this case, by internalising the benefits and decisions concerning the allocation of the Indigenous budget, to the beneficiaries (the community group holding the rights). As a result, the beneficiary of the private and impure public goods is the decision maker. That is, the community or family group that is the holder of the rights.

linked with cultural uses and private benefits being linked with material uses. Material uses include food and shelter. Cultural uses include icons, sense of place, totemic use and responsibility to land[16].

Some cultural benefits might be enjoyed with little or no explicit input. However, many cultural benefits require ongoing investment, such as through the use of ceremonies and the sharing of catch. Any preference for increased cultural (public) benefits can be achieved by giving up material (private) benefits such as catching fish, and spending more time carrying out ritual and spiritual activities[17].

The capacity to increase cultural benefits, however, is limited, as the origins of many cultural benefits is unique to place. It may be that cultural benefits might be increased by foregoing material benefits and spending more time in direct cultural activities. However, the rate of improvement in cultural benefits with each unit of material benefits foregone, will get less and less. That is, the cost of cultural benefits, measured in material benefits foregone, will increase. The situation for material goods is likely to be different, as material substitutes can be readily imported from outside of the communal estate.

Consumer surplus

Consumer surplus is the total benefit enjoyed by somebody through the consumption and enjoyment of a particular item or activity in excess of the price paid. However, the loss of consumer surplus following the removal of an item or activity will in most case be less than the consumer surplus enjoyed from the consumption of the item. Instead, the loss incurred will depend on the uniqueness of the consumable characteristics of that item or the supply responsiveness and the availability of substitutes. That is, if items of similar consumable characteristics are readily available, there will be little or no loss in consumer surplus. If, however, readily available substitutes do not exist, much of the consumer surplus is lost. That is, to the degree that the unit cost of benefits increases and consumption decreases with a loss of rights, there is a loss in consumer surplus.

[16] This breakdown is somewhat simplistic as some benefits, that are non cultural, such as access to sea transport, yet they are public benefits.

[17] This too is an oversimplification, as the catching and use of fish can have important cultural elements intertwined with the activity.

For recognised Aboriginal and Torres Strait Islander rights, close substitutes with similar consumer characteristics are likely to be found for material benefits; as, for instance, the substitution of beef for kangaroo meat[18]. The situation for cultural benefits, however, is likely to be different, as close substitutes are less likely. Therefore, any loss of cultural benefits is likely to be accompanied by a substantial loss of consumer surplus.

Summing total change in value

How total change in value is estimated will depend on whether benefits are public, private, or there is jointness in supply. A unit change in material benefits may affect only one individual and is likely to include little if any consumer surplus. A unit change in cultural benefits will affect all the members of a community, with the benefits lost or gained from the change in rights summed over all community members, including possible consumer surplus. The total effect of a loss in benefits due to changes in the rights held is estimated by summing the change in private benefits and adding this to the change in public benefits, including any loss in consumer surplus. When joint benefits exist, each of the types of benefits is summed, as above.

Consumer choice in an Indigenous economy

The loss of rights results in a decrease in a community's 'budget' and is therefore a loss of the choices and benefits available to a community. While both material and cultural benefits are likely to decrease, the lack of ready substitutes can, all else equal, result in a greater loss of cultural over material benefits[19].

The amount required to compensate for the loss of benefits resulting from the loss of recognised Aboriginal and Torres Strait Islander rights depends on the expected 'consumer' behaviour of Indigenous people. Just compensation is assumed to occur when those suffering a loss of rights are made no worse off to what they were before the loss of rights. It does *not* require those compensated to be able to hold the same bundle of goods before their loss of benefits. Indeed, given the nature of many cultural benefits being

[18] Recognising, of course, that there are a lot of other elements to the capture and consumption of kangaroo meat to a family or community in addition to the commodity value, that beef can not supply.

[19] The economic considerations under entry to an Indigenous site are similar to the environmental consideration for an environmental site described by Krutilla and Fisher (1975). Namely irreversibility, substitutability and technical progress. In this case, the material benefits have a high level of substitutability which can be expected to improve in time with technical progress. Cultural icons, however are not readily substitutable, while their loss is not reversible.

attached to place, in some cases, at least, it would not be possible to return Indigenous people to the *same*, rather than an *equivalent* position.

For compensation to occur, the budget must be increased sufficiently to achieve the same level of satisfaction as that before the loss of rights. However, the likely relative increase in the cost of cultural benefits through a lack of ready substitutes, means a substantial increase in material benefits is required. The quantity of material benefit required to carry out compensation will depend on the community's relative preference of cultural [20] over material benefits.

In real terms, compensation involves returning a community to the original level of 'satisfaction'. This requires a lower level of compensation to that required to ensure a community has or can afford the same mix of material and cultural goods held before the loss of rights. To observers unaware of cultural loss[21], the increase in material benefits might appear to be excessive. Such apparent largess can result in claims of unfairness from those outside of the Indigenous community. However, while there may be an illusion of budgetary increase, in real (utility) terms, there is no increase in budget.

Data estimation

Although the components of Indigenous value are set out in the previous section, a greater difficulty lies in their quantification, particularly when such values need to be based on non market values. As observed in the economic literature on the valuation of non market environmental benefits (eg., see Cummings and Harrison 1994), there is considerable debate on how these benefits might be quantified. While recognising these uncertainties, possible approaches to value Indigenous rights are set out below. Just which approach or mix of approaches is used will depend on the circumstances in which they are to be applied and the issues or questions that are being answered.

Market valuation methodology

Land valuers base estimated freehold value on the price received for the property being

[20] That differences exist between clans in the relative weight given to the cultural versus the material, is implicit in the discussion by Sharp (1996, p. 185).

[21] The possible effects of such loss are amply demonstrated by the willingness of Native Americans to pay a price greater than freehold value for previous tribal lands (Cummings 1991).

valued or the price paid for a similar property. If equivalent freehold value is not available, recourse is made to non market methodology.

Non market valuation

Non market methods used by land valuers includes use of replacement cost and estimates of the present value of future expected benefits. Both methods rely on a market price or market value in one form or another. Replacement cost is the cost incurred in returning the item being valued to its present condition. In the case of food, it might mean the cost of purchasing and delivering food from somewhere else. The strength of this approach is costs are based on existing market prices and costs.

Alternatively, value can be assessed on the basis of the present value of future benefits. Apart from which discount rate (see Department of Finance 1991) to use, this approach depends on market derived monetary costs and benefits, values that are unlikely to be available for Indigenous rights.

Coexistence of Indigenous property rights with other statutory rights

The Croker Island decision appears to restrict *Indigenous* rights to one of coexistence with other statutory rights held by non *Indigenous* holders of rights. This outcome appears to be analogous to the *Wik* decision.

Sheehan and Wensing (1998) suggest coexisting *Indigenous* property rights are analogous to an easement. This is '*a right attached to one particular piece of land which allows an owner of that land (right) to use the land of another in a particular manner or to restrict its use by that other person to a particular extent*'(Brown 1991, referenced in Sheehan and Wensing 1998, p. 35). Alternatively, coexisting rights might be viewed as *profit a prendre*, or the right to take profit. While this may present the legal basis to valuing these rights, what is being described is an economic interest (economic rights) in land. The rights based analysis used in this paper does not differentiate between the form of rights nor their origin. Instead, the emphasis is on the economic characteristics of the rights and the relative value placed on them.

Non market valuation methodology

Alternative markets (hedonic pricing)

Valuations based on the use of alternative markets (hedonic pricing) requires the identification of marketed items with similar consumer attributes to the item for which value is sought. Statistical techniques are used to identify the contribution that the attributes in question make to the price of the tradeable good. This data is used to estimate a value for the non marketed item.

This approach was used in one of the submissions by native Alaskans in their submission to the District Court of Alaska as a basis of their claims for compensation following the *Exxon Valdez* oil spill[22].

Two assumptions important to this approach are, first, that the resources or items (for which Indigenous value is sort) are definable in terms of the embodied consumer attributes sought by the Indigenous group. Secondly that these consumer attributes are embodied in other resources or items that are marketed and are measurable.

Even if items share similar characteristics, the weights given to the attributes can differ between communities. Therefore, other considerations such as differences between communities including differences in budget (rights held), culture and story telling, are also important. This approach also requires a large sample size and a high level of analytical sophistication. Depending on the context in which value data is obtained, observable expenditure is usually limited to private benefits, because access to and enjoyment of public benefits can not be excluded. As a result, the marginal value of public cultural benefits may be unobtainable.

Instances of when some of these conditions might be met is through negotiation between Aborigines and Torres Strait Islander people for compensation. While such payment is likely to include components for lost cultural benefits, the results of agreements under the *Native Title Act 1993* are intended to be confidential. This constraint need not apply, however, to compensation made outside of the *Native Title Act 1993.* The point to be made in favour of this approach is that the outcome of such negotiation might be simular

[22] This data was not used in the final valuation for compensation, with the Court ruling that the valuation needs to be based on market value. Duffield (1997) commented on the inconsistency of the District Court in their understanding of

to an open market; although the condition of a willing buyer and a willing seller might not be involved. While there is limited data involving access to and use of fish and fish related resources, analysis of existing data could be used to infer 'cultural value'.

Travel cost analysis

Another possible way of obtaining a measure of value is use of the travel cost method. This approach has been used to obtain an estimate of the marginal value of fish taken in a number of studies (see Schuele, M. Rose, R. and Treadwell, R. 1997). The basis of this analysis is that any additional cost incurred in travel will equal the additional value obtained as a result.

This approach could be used in the context of the alternative market or hedonic pricing. Accordingly, the same assumptions apply, including the need to identify the embodied attributes, as the benefits from travel often includes much more than those attributable to the fish resource. Resolution of this difficulty is required if the incremental value of fish resources is to be obtained using this method. A particular difficulty in valuing Indigenous rights, is to what degree analogous travel behaviour is identifiable for Aborigines and Torres Strait Islanders. In any case, non monetary measures will most likely be required.

Contingent valuation method

Contingent valuation is a survey method used to measure the willingness to pay for an improvement or the willingness to accept a deterioration. The objective in this case is to obtain a measure of economic value for hypothetical changes on the basis of hypothetical monetary bids from a representative sample of the population.

Assumptions and difficulties

Unlike the travel cost method, this approach might be used to obtain a measure of marginal value by direct inquiry from the resource users. However, and in spite of the apparent simplicity of the approach, a number of sources of bias limit the applicability of this approach. The sources of bias are:

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economic value.

- It is crucial that a hypothetical payment vehicle is used in the survey to convince respondents of the possibility of having to pay the bid price.

- The values obtained when using a bidding technique to obtain an estimate of willingness to pay, can be influenced by the starting point.

- If there is a belief that responses to the question will affect future actions, respondents may give an answer which they see may affect the outcome consistent with their own interest.

- There may be wide differences in knowledge among respondents, while a large amount of information in the questionnaire can result in information over load and confusion.

Addressing these problems is likely to be even more difficult in an Indigenous economy.

Opportunity cost

Two possible lines of development based on opportunity cost could be taken to value some components of Indigenous value. The first follows one of the approaches used by native Alaskans in relation to their claims for compensation due to damage as a result of the *Exxon Valdez* oil spill. In this case, the income foregone by remaining on tribal lands was compared with the income that could have been earned elsewhere (Duffield 1997).

The second option might be to examine the allocation of time between alternative uses, where one of these uses incurs an income; eg., either through direct employment or through the production of Indigenous artefacts for resale. The assumption is that the last unit of time allocated to each of the activities would have the same unit value. Detailed data, similar to that collected by Altman (1987) on the Menega outstation in north central Arnhem Land, would be required.

None of these approaches has been examined closely within an Indigenous context. However, the assumptions bywhich such methodology could be applied, such as access to an alternative source of income and flexibility in adjusting the time spent between

alternatives, would need to be critically examined.

Other alternatives

The non market nature of Indigenous value is such that a range of alternative measures warrant consideration, including use of non parametric (non quantitative measures) methodology.

Identification of unaccounted value

This approach relies on the estimation of all those values that are identifiable and can be measured, leaving the unaccounted values to subjective valuation (see Krutilla and Fisher 1975), or negotiation. Where Indigenous rights are involved, those actually affected by a change in rights should be included in the subjective evaluation.

Alternative numeraire

Value estimates normally rely on the use of differences in monetary value to indicate differences in relative value. While there are a number of benefits from the use of monetary units as a numeraire of relative value, other items, such as pearl shell in Papua New Guinea, can be used. It is important in selecting a numeraire that consistency in the relative value of different goods is shown to exist.

Ordinal ranking

Ordinal ranking involves the ranking of benefits attributable to rights according to preference. Use of this approach can be used to obtain a relative weighting of willingness to give up or forego and, therefore, an indication of relative economic value.

Baskets of possible benefits in compensation for lost benefits could, through negotiation, be included in the ordinal ranking. It may be possible, through incremental increases in the content of the basket of compensatory benefits, to obtain a cardinal measure of value, in which case an alternative numeraire of value might be developed.

Discussion and conclusions

The benefits derived from recognised Indigenous rights to fish resources are viewed in economic terms. Impediments to the economic valuation of these rights exist, including

the absence of a market. Thee absence of a market in Indigenous rights does not necessarily prevent their valuation. However, a poorly developed understanding of the economic characteristics of Indigenous rights, and the lack of appropriate measure of Indigenous value inhibits its valuation. In addition, the laws, rules and procedures surrounding the recognition and use of Indigenous rights is still under development. This leads to uncertainty over the benefits obtainable from holding recognised Indigenous rights and impacts on any negotiations involving Indigenous rights to fish resources. This uncertainty can be mitigated by including Indigenous people in any negotiations for access to fishery rights and resources.

The approach in this report has been to develop a generic understanding of how Aboriginal communities may derive economic value from the benefits obtainable to them from their rights. This development, comprises public and private benefits, provides an economic link missing in earlier discussions on the valuation of Indigenous rights. It also indicates the possible economic approaches to obtain a measure of value, data requirements and how this data is to be used. Because questions of value are often involved in negotiations concerning Indigenous rights, the economic structure also provides a frame for negotiations between Indigenous peoples and others.

The methodologies by which the necessary economic data might be collected are examined and are in most part found to fall short of requirements, or to possess particular difficulties in their application. In spite of this, areas of possible future development are identified and suggestions in how economic data might be used, are put forward. Of the methodologies examined, the opportunity cost approaches are worthy of further examination. In addition, because Indigenous rights are inalienable rights, constraints exist to the free sale of rights. The restriction of the right to negotiate to the landward side of the mean high water mark in the 1998 amendments to the *National Native Title Act 1993*, has not made the valuation of recognised Indigenous rights between the mean high and low water marks, any easier.

Opportunities exist, however, for improvements in social benefits without the necessity of change in resource use and with the possibility of improved ongoing management. Responsibility for resources is seen to be an important component of the culture of

Aboriginal and Torres Strait Islanders. Resolution of this need can be improved through their further inclusion and involvement in commercial and recreational fisheries and resource conservation and management.

Benefits of negotiation

Where there are few buyers and few sellers, negotiation is an important part of any exchange of goods in terms of price setting and identification of what is being exchanged. Economic payoffs can occur as a result of negotiation between people interested in access to and use of fishery resources:

- Normally, mutually beneficial freemarket exchange is likened to one involving many buyers and many sellers of equal strength and where the buyers and sellers are fully aware of what is being exchanged. Instead, what usually occurs when recognised Indigenous rights are involved, is a single buyer and a single holder of community rights[23]. There is also likely to be a high degree of variability in the benefits that can be enjoyed from holding rights and in what is being exchanged (in monetary and non monetary terms) for these rights.

- Negotiation can assist the development of institutional structures that can encourage future and ongoing cooperation in access to and utilisation of rights to fish resources by Indigenous and non Indigenous parties.

- Net gains can be increased if the original owners of the resource rights only transfer those subsets and particular commodity attributes required by the other person, while retaining the rest (Barzel 1997).

- The cost of to carry out such negotiations, including the cost of information, can be substantial. However, negotiation should only be carried out as long as the additional benefits exceed the additional cost.

- It is also important for negotiation to be carried out in an environment in which the participants are of equal strength, where the procedures used are transparent

and the attitude taken to the negotiation table is positive (Smith 1997). The development of standardised procedures can help to progress future negotiations and to minimise costs (eg, see Allbrook 1995).

Smyth's (1998) report sets out possible models and experience from within Australia and overseas on the development of indigenous rights and the involvement of indigenous people in negotiations over the application and use of rights.

In concluding, further steps to the development of methodology for valuing Aboriginal peoples and Torres Strait Islander rights have been taken in this report. These include the identification of the components of value and the approaches that might be used to obtain measures of value. Although described as non market measures, most approaches rely on access to an alternative market, payment or expenditure data. Little appears to have been done in the adaptation of these approaches to the measurement of Indigenous values, most likely because of the paucity of suitable price data.

One possible source of data could be from compensation payments that are based on negotiation. Possible shortcomings of this approach are when such negotiations are required to be confidentiality, and negotiation do not necessarily occur between parties of equal strength.

Two alternatives that might circumvent the lack of price information are the use of an alternative numeraire and the use of ordinal ranking. The approach that is reliant on the least demanding assumptions is ordinal ranking. Although this approach supplies the smallest amount of information, it can still be a valuable tool when negotiating the transfer of those subsets and commodities attributes required by others. An additional insight from this report is the explanation of why compensation for the loss of Indigenous rights might appear to be as high as it sometimes is. The major point from this review, however, is the importance that negotiation must take in valuing rights.

[23] Of course, Indigenous people, too, may be involved in the purchase of rights.

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