

Human rights based approach to ecosystem services in rural Timor-Leste

Pedro Damião de Sousa Henriques
CEFAGE and Department of Economics
University of Évora - Portugal
pdamiao@uevora.pt

Vanda Narciso
Independent researcher
Portugal
vandanarciso@gmail.com

Manuel Couret Branco
NICPRI and Department of Economics
University of Évora - Portugal
mbranco@uevora.pt

ABSTRACT

Land and water are the main supporters of almost every ecosystem on earth, either natural or semi-natural, including the traditional land use systems developed by human beings. The multidimensional services supplied by the different land uses are essential resources for the great majority of the population in developing countries. Besides the economic value associated with those services, land services have also historical, cultural and sacred values that should not be ignored as they have shaped over time the social organization of communities.

Recognizing the multidimensional character of the services provided by nature in general, and land in particular is precisely the essence of a human rights approach to development. According to the United Nations Organization (UN), a human-rights based approach to development is a conceptual framework for the process of human development that is normatively based on international human rights standards and operationally directed to promoting and protecting them. In its essence, a human rights-based approach integrates the norms, standards and principles of the international human rights system into the plans, policies and processes of development.

In this article, specific emphasis will be placed on the relationship between well-being and land use, through physical, economic, social and cultural connections. Our primary concern is to show that human development, in rural areas cannot be measured

by the simple production and consumption of commodities sourced in what is conventionally called the primary sector but of a more complex relationship involving mobilization as much as preservation of resources, and material consumption as much as spiritual fulfillment. While carrying out this purpose we will pay special attention to conflicting land uses that may impair population's well being.

First, we will present East Timor and the concept of ecosystem services. Indeed, human well-being is dependent upon multiple and often interrelated ecosystem services contributing each of them to more than one component of well-being. Furthermore, there is interconnectedness of the well-being components and ecosystem services are dynamic and context-dependent.

Second, we will discuss the human rights approach to development with special emphasis on cultural freedom, which can be defined as the freedom of people to choose their identities and to lead the lives they value, without being excluded from other choices important to them.

Third, we will examine land use patterns in East Timor and its relation to the well being of rural East Timor. In this part we will show how services provided by nature are at least both economic and cultural, and that despite the fact that there may be conflicting uses, a human rights approach must take both services into consideration and value them equally.

INTRODUCTION

Services delivered by ecosystems are essential resources for the livelihood of the great majority of the people in developing as much as in developed countries, land and water being the main supporters of almost every of these ecosystems, either natural or mediated by human beings. Besides the economic value associated with these services, they have also historical, cultural and spiritual values that should not be ignored as they have participated in shaping the social organization of communities throughout the ages. In this perspective, land use should not be viewed or examined in isolation but in its natural, social, economic and cultural context.

Recognizing this multidimensional character of the services provided by nature in general, and land in particular, is precisely the essence of a human rights-based approach to development. According to the United Nations Organization (UN), a human

rights-based approach to development is a conceptual framework for the process of human development that is normatively based on international human rights standards and operationally directed to promoting and protecting them. In its essence, a human rights-based approach integrates the norms, standards and principles of the international human rights system into the plans, policies and processes of development. In other words, in such an approach human rights are simultaneously the means and the ends of human development.

This article will particularly emphasize the relationship between human well-being and forests and non-productive land use in Timor-Leste, through physical, economic, social and cultural connections. Our primary concern, here, is to demonstrate that human development cannot be measured by the simple production and consumption of commodities sourced in what has been conventionally called the primary sector, but by a much more complex formula involving mobilization as much as preservation of resources, and material consumption as much as spiritual fulfillment. While carrying out this purpose we will give special attention to the conflicting uses of ecosystem services that may impair population's well-being.

Ecosystem services are benefits provided by ecosystems that contribute to making human life both possible and worth living. These include human use of products from forests, wetlands and so on, and the services ecosystems provide human societies such as cultural services, nutrients and water cycling, soil formation and retention, resistance against invasive species, pollination of plants and regulation of climate. These overall goods and services can be aggregated according to different classification methods. The Millennium Ecosystems Assessment (MEA), for example, aggregates them in four categories: provisioning, regulating, cultural and supporting (MEA 2003), while De Groot, based on the same principles, uses five categories: regulation, habitat, production, information and carrier (De Groot 2006). Both these classifications illustrate the inextricable and multidimensional connection between natural systems and human well-being but, in this paper, we will only use the MEA framework.

Well-being is an inclusive concept; in its broadest sense human well-being refers to everything important to peoples' lives, ranging from basic elements required for human survival (food, water, shelter) to the highest-level of achievement of personal goals and spiritual fulfilment. According to the MEA, the essential components of human well-being are security, basic material endowment for a good life, health and good social relations. These four elements contribute to an essentialized definition of

well-being that has been well translated by concepts such as “freedom of choice and action” or “development as freedom” (MEA 2003; Sen 2000).

The variety of material constituents of well-being have long been considered as economic resources in development theory and practice. Despite the fact that there is no undisputable evidence relating the amount of material resources available and development potential, conventional wisdom suggests that the more resources the better. Immaterial constituents such as culture, however, have not been always treated likewise. Actually, in traditional approaches to development and well being, cultural and economic resources have usually been taken as antagonistic, culture often being considered an obstacle to economic development.

Max Weber’s (1958) in the beginning of the twentieth century and later Bert Hoselitz (1952), Margaret Mead (1953), Edward Banfield (1958), Everett Hagen (1962), Seymour Martin Lipset (1959) and other modernization theorists such as Walt Whitman Rostow (1960) and Gunnar Myrdal (1968), placed cultural change at the center of economic development. More recently, Lawrence Harrison and Samuel Huntington (2000), Douglass North (2004 [1990]), David Landes (1999), or Francis Fukuyama (1995; 2000) gave a new momentum to this approach. Values shared by people, for instance, could be wrong (Fukuyama 2000); culture would be a constraint on rationality (Lal 1999; North 2004), and thus the main generator of differences between economic performances (Landes, 1999). Samuel Huntington, in his turn, argues that the reason why South Korea joined the developed world and Ghana did not, despite these countries having displayed comparable levels of development in the early 1960s, can be explained by the differences in the values shared by the respective national communities (Huntington, 2000: *xiii*).

HUMAN RIGHTS-BASED APPROACH TO DEVELOPMENT AND CULTURE

A human rights-based approach, on the contrary, intrinsically refuses the idea that there are cultures better fit than others to promote human well being and that, therefore, development could only be achieved through cultural renunciation. In practice a human rights-based approach to development is structured around five fundamental principles: 1) rights as means and ends of development; 2) universality and

indivisibility; 3) accountability and the rule of law; 4) participation and empowerment, and; 5) equality and non-discrimination.

The principle according to which human rights are means and ends of development implies not only that development policies respect human rights principles when being implemented, but also that their goals consist in achieving international human rights standards. These standards can be found chiefly in the Universal Declaration on Human Rights and in what have been called the seven core treaties, of which the most relevant for our purpose are the International Covenant on Economic, Social and Cultural Rights and the International Covenant on Civil and Political Rights. The scope of these rights range from the fulfilment of material aspirations, such as the right of everyone to an adequate standard of living for themselves and their family, to the enjoyment of immaterial amenities such as freedom of speech or of religion.

Among the set of rights registered in the various proclamations cultural rights are probably those that have received the least attention. To a certain extent this poor attention is understandable on account of the intrinsic difficulty in defining them. Indeed, in contrast with other rights, indicators of cultural freedom are scarce. UNESCO in 2001 approved a document entitled Universal Declaration on Cultural Diversity in which it is stated that cultural diversity is an ethical imperative inseparable from respect for the dignity of the individual, as necessary for humankind as biodiversity is for nature. In the following year the United Nations Committee on Human Rights approved the first-ever resolution on cultural rights entitled 'Promotion of the enjoyment of the cultural rights of everyone and respect for different cultural identities', henceforth widening human rights language to cultural identity.

The very definition of culture, on the other hand, suffers from an upsetting lack of consensus. In order to avoid misunderstandings, culture shall be taken in the following pages as the shared knowledge, values, beliefs and attitudes transmitted from generation to generation, which are at the foundation of order and sense, and which allow the members of a community to behave in a convenient and acceptable manner, or at least an understandable one (De Kadt 1999).

Respect for the principles of universality and indivisibility, in its turn, imply that no one can be arbitrarily deprived of the enjoyment of human rights and that the value of each human right is intrinsically equal. Beyond the legitimate statutory exceptions, basic liberties do not admit exclusion, in other words if rights are not guaranteed for all, then they belong to none. Indivisibility of rights means that they cannot be ranked in a

hierarchical order. If one can admit that, in practice, it is hard to avoid prioritizing them, that is to say achieving some rights before others when resources are scarce, one must agree that one part of the overall goal cannot be achieved in detriment of another (Branco 2009).

If services provided by ecosystems are taken as rights each one of them is as important as the other to human well being, this being the outcome of a combination of material, political, cultural and spiritual values, none being dismissible in favour of the others. Improving well-being demands, therefore, producing a growing quantity of goods and services as much as nurturing identity and freedom. Let us consider for the purpose of this argument that there is a conflict between two different objectives in the use of a resource, economic and spiritual for example. If the former prevents the latter, then one should not consider the benefits of its use only as adding positively to people's well being. Indeed, in this case one must take into account both the utility of the use of the resource for economic purposes and the disutility of the loss of the resource for other uses or for the use of other people.

The third principle of a human rights-based approach to development is accountability and the rule of law. If one endorses human rights then one should also accept that each individual has some sort of credit with society concerning the provision of those goods and services that are needed to secure human rights. If there are not enough water or health services for everybody and therefore the individual's right to those goods and services is not being secured, for example, to whom should he or she turn? Indeed, the right of an individual corresponds perforce to the duty of another or of the community at large and if the rights of an individual are not secured, this means that other individuals or institutions have failed in carrying out their duties (Branco and Henriques 2010). In human rights language the exchange held between an individual and a provider is converted into a relationship between a rights-holder and a duty-bearer, accountability becoming, therefore, a critical issue.

The fourth principle, participation and empowerment, means not only that every person and all peoples are entitled to active, free, and meaningful participation in the process of designing and implementing development policies (DEZA 2007), but also that the outcome of these policies should strengthen the participation and the empowerment of these same persons and peoples in other levels of social life. In other words development policies should also be expected to reinforce substantive democracy. By substantive democracy we mean a democracy which, besides elections,

demands wide civil liberties, including freedom of association and expression; citizens to be deeply involved in the decisions on matters that affect them; and institutions to be strongly committed with responsibility and accountability in the running of public affairs; a democracy that not only aims at the interest of the governed but also at their meaningful participation in the process of decision-making. (Branco, 2012)

The last principle in our list concerns equality and non-discrimination. Human rights, if they are to be fully taken as rights, must be equally allocated among all those entitled to enjoy them within the community. Basic liberties, for instance, do not admit any allocation other than an egalitarian one (see Rawls 1972). This does not imply that goods and services necessary to secure human rights must be equally distributed among the people, but that everyone must have equal access to them. Otherwise, more than just deprivation we could be facing a violation of human rights. Equality and non-discrimination mean first, that no one can be deprived of their human rights on the basis of ethnic, religious or political affiliation, or also gender and economic status, and, second, that everyone should evenly benefit from the minimum amount of that material provision considered fundamental to secure a given human right.

In the case of the human right to water and sanitation, recognized at the General Assembly of the United Nations through resolution 64/292 (UN, 2010), for example, what is at stake is not that people should all benefit of the same amount of water but that everyone should have equal access to that minimum amount of water that is considered necessary to secure the human right to water. People should, then, have equal access to 50 to 100 liters of water per person per day to meet basic personal needs (OHCHR, 2011), not exactly to the amount needed to fill up a private pool or wash the family car in the driveway.

FOREST AND NON-PRODUCTIVE LAND USE AND THE WELL-BEING OF RURAL TIMOR-LESTE

The majority of the population lives in rural areas (73.5 per cent), spread over 2,300 villages, and draws its livelihood from subsistence agriculture, which means that they enjoy a low standard of living. As almost everywhere in the world, the urban population in Timor-Leste is growing much faster than the rural population (World

Bank, 2008). From a cultural point of view Timorese are divided into 34 ethno-linguistic groups although the official languages are Tétum and Portuguese.

Land use patterns in Timor-Leste are strongly determined by the territory's topography, geological origin, climate and human intervention. The topography of the country is dramatic, ranging from Mount Tatamailau at 2960 meters, Mount Cablac at 2340 meters and Mount Mata Bian at 2370 meters to lowlands at sea level (Soeiro de Brito 1971). These three mountains stand within 20 Km of the coastline. Globally 35% of the land is located above 500 meters, 44% between 100 and 500 meters, and 21% below 100 meters. On average, almost half of the land in Timor-Leste presents a slope of 40% or more (Mota 2002).

The island of Timor originated from limestone and metamorphosed marine clays, which resulted in fragile and unfertile soils. Climate is tropical with a monsoon between October/November and March. The south coast also benefit from a small monsoon between May and June. Above 500 meters altitude, the amount of rainfall is twice the annual average observed in lower altitudes, 500 to 1500 mm in the north coast and 1500 to 2000 mm in the south coast (Silva 1956). Land occupation in Timor can be ecologically divided in the following categories: mountainous areas; highland plains; moist lowland areas (along the southern coast); arid lowland areas (along the northern coasts); marine and coastal areas; and, urban areas (RDTL 2005a).

Table 1 - Land use areas by category

	Area Hectares	%
Forest land		
Lowland	761,486	51.0
Highland, coastal & other	92,768	6.2
Agricultural land		
Estate crops	74,578	5.0
Food & other	336,400	22.5
Non-productive land	203,152	13.6
Cities, towns villages	19,934	1.3
Lakes	5,080	0.3
Total	1,493,398	100.0

Source: RDTL 2005a

According to Table 1, the system examined in this paper is composed mainly of forests in lowland (51%), forests in highland, coastal and other areas (6.2%), non-productive land (13,6%) and lakes (0.3%) in a total of 1,062,486 hectares, covering more than two thirds of the territory of Timor-Leste (71,1%). Ruy Cinatti (1950) classified the forest communities of Timor-Leste as: mangrove, littoral, primary forest and secondary forest and savannah. The area of primary forest is estimated at close to 1.4 % of the country's total surface (Reis 2000). Agricultural land covers close to 27.5% and urban areas only 1.3%. However, MAFP estimates suggests that land suitable for agriculture reaches close to 600,000 hectares, including 203,152 hectares of abandoned land (RDTL 2005a; RDTL 2005c).

Human manipulation of Timor-Leste's natural ecosystem started some 40,000 years ago, continued with the arrival of the Portuguese at Lifau in the beginning of the sixteenth century and was dramatic accelerated during the 24 years of Indonesian occupation of the territory. Intensive exploitation of sandalwood, almost until extinction considering its natural regeneration rate, was the main change Portuguese colonization brought to Timor-Leste's land use patterns in the nineteenth century. The near extinction of sandalwood coincided with the introduction of coffee production, a coffee economic cycle thus succeeding a sandalwood economic cycle.

The Indonesian occupation of the territory from 1975 until 2002 is responsible for a dramatic deforestation, mostly of the remaining sandalwood and of other commercial timber species. Gusmão (2003) reports that reforestation programs were suspended during the Indonesian occupation for security reasons because Timorese guerrilla was based in the forests; for the same purposes crop production was encouraged by opening clearings in the forest without securing soil conservation. Population and economic growth, and the consequent market pressure are, in turn, expected to boost the use of land for cash crops, industries and services. These changes will involve a significant manipulation of ecosystems and often a permanent conversion of the original ecosystem.

In the past, Timor-Leste was well endowed with natural forests and was already known by the Portuguese navigators that would eventually reach its shores as the land of sandalwood. When the Portuguese arrived to Timor-Leste a prosperous commerce of sandalwood with several countries in South East Asia, like China, was already in place. There is evidence that sandalwood has been harvested in Timor-Leste for as long as a

thousand years. In the early days, demographic pressure on the territory was low and shifting cultivation in forests was a traditional and sustainable land management system. Later, during the colonial period, forests declined, both in its extent and in its condition, due to clearing for agricultural purposes and to uncontrolled timber harvesting. Recent evidence suggests that further degradation and over harvesting of forests has occurred in the last decades of the twentieth century, and that much of the land that was formerly classified as forest was actually grassland, savannah or secondary forest. In the period between 1972 and 1999, roughly coinciding with Indonesian occupation, estimates point to the loss of 114,000 hectares of dense forest and 78,000 hectares of sparse forest (NDFWR 2004).

Timor-Leste's main natural forests can be classified in three major types: savannah formations dominated by white eucalyptus (*Eucalyptus alba*) and tamarind trees (*Tamarindus indicus*), located mainly in the northern part of the country; open or moderately dense forest dominated by black eucalyptus (*Eucalyptus urophylla*) associated with several other species such as ferns, located in the mountainous areas; and tropical monsoon forest carrying a mixture of species, some with timber production potential, of which the most relevant are sandalwood (*Santalum album*), ai kiar (*Canarium reidentalia*), red cedar (*Toona sureni*), redwood (*Ptedocarpus indicus*) and teak (*Tectonia grandis*), located in the eastern and southern parts of the country (RDTL 2005a; NDFWR 2004).

The ecosystems considered in this paper are also home for several species of palm trees, eight species of bamboo, four species of rattan and are house to reptiles (crocodiles, snakes and lizards), mammals (deers, wild pigs, cuscus and monkeys) and birds species (lorikeets, land and sea eagles and pigeons). Some of these species are endangered like a lorikeet (*Philemon Inornatus*), a colourful parrot once very common in the Timorese forests. At least seventeen of the country's wild species are commonly hunted such as deer (*Rusa timorensis*), wild pig (*Pork sp*), wild buffalo (*Bos Savanicus*), cuscus (*Phalenger orientalis*), and laco (*Paradoxurus hermaphrodites* or *mussanga*). Hunting is practiced throughout the year and uses traditional methods such as spear, dog, bow and arrow and trap (NDFWR 2004; Gusmão 2003).

Timor-Leste being an island, coastal areas are understandably critical in both economic and social terms. However, these ecosystems are also very fragile. They include coral reefs, seaweed and sea grass beds, beaches and seashores. Seashores are composed of beach forests of mangrove and also of river and lake estuaries, and are

home for aquatic plants, invertebrates, fish, bats, water birds, amphibians and reptiles. Many species of fish of high economic value, including tuna, skipjack, mackerel and snapper live in the seas surrounding the country. The north coast sea is also host to large seasonal populations of whales and dolphins migrating to the Pacific Ocean. Available information suggests that, compared to other countries in the region, these areas are largely unspoiled. Eastern littoral areas, for instance, lie within the Coral Triangle, where the greatest biodiversity of coral and reef fish in the world can be found (BirdLife International 2010).

The goods and services provided by Timor-Leste's land use patterns will be examined according to the four categories defined by the MEA: supporting, provisioning, regulating and cultural (MEA 2003). Supporting services means those services necessary for the production of all other ecosystem services, such as soil formation or nutrient cycling; provisioning services concern products that can be obtained from ecosystems such as food, freshwater or fuel wood; regulating services are the benefits obtained from regulating ecosystem processes and regard climate or disease regulation for instance and, finally; cultural services are non material benefits obtained from ecosystems, ranging from religious to educational and recreational services (MEA 2003). These services satisfy direct and indirect human needs, thus contributing for people's well-being in all the dimensions expressed in the MEA: security, basic material for good life, health, good social relations and freedom of choice and action (MEA 2003).

Provisioning Services

The most important contribution of forests and non-productive land for the basic material for a good life, i.e. its provisioning function, comes from the exploitation of the various species of timber: sandalwood, redwood, red cedar, teak and white and black eucalyptus. In turn, the most important non timber products are: fuel wood, rattan, bamboo, palm tree building materials, medicinal plants, honey, bee wax, palm flour, palm wine, wild fruits and plants (betel nuts, mushrooms, tamarinds, roots, tubers, sprouts, leaves and flowers), and animals for meat (deers, monkeys, birds, marsupials), materials for handicrafts and jewellery, fodder for animals and fertilizers to agriculture.

In the past, the most valuable specie was undoubtedly sandalwood, used to extract oil famous for its fragrance. Portuguese navigators when arriving to East Timor abundantly referred the fragrance exhaled by the sandalwood forests that covered the hills of the northern coast of the territory. The island of Timor is the centre of origin of sandalwood tree and an important source of genetic resources and biodiversity valued internationally. However, sandalwood was almost totally harvested in an unsustainable way and, consequently, today, there are only sparse manifestations of sandal in the districts of Covalima, Lautem, Oecussi and Bobonaro and in the house gardens of Dili, which means that, with the exception of illegal harvesting, earnings are scarce or non-existent. In some areas of Bobanaro sandalwood is a sacred tree, which to a certain extent has helped its preservation.

The other timber species, redwood, red cedar and teak are important sources of materials for local manufacturing industries and for exporting. Among these species teak covers the largest surface, with some 3500-4500 hectares. Teak is not native of Timor-Leste and was introduced with success about 100 years ago. Nevertheless, given the small areas covered, consistent income from this production will only be generated in the future, some 20 to 40 years from now, if new plantations are made. Furthermore domestic prices are considerably below international prices on account of a lack of transparency in timber markets. As a result, fine timber with high exporting value is used for domestic purposes when other sorts of timber would be more adequate.

Forest is also a supplier of building materials. The main resources are the above-mentioned timber species and bamboos for beams, black and white eucalypt for poles, and palm tree materials and bamboos for walls, fences and roofs. The beds of streams and rivers supply the construction industry with gravel and sand materials through small-scale firms. Rattan and bamboo are also used in the manufacture of furniture.

Besides the above-mentioned uses, forests are also the main supplier of energy for domestic use in Timor-Leste. Fuel wood harvested from its forests accounts for 93% of energy consumed in the country (NDFWR 2004). Consumption of fuel wood is estimated at some 800,000 tonnes per year, which gives an average daily per capita consumption of 2.2 kilograms (RDTLa 2005). The main fuel wood suppliers are white and black eucalyptus. The harvested wood is used for self-consumption and also as a source of income for many families living close to the main roads.

Plants and honey have been used since ever by the people of Timor-Leste to prevent and treat diseases. A study entitled “Virtues of some plants on the island of

Timor”, carried out in the eighteen century by Frei Alberto de São Tomás (1969), a Dominican missionary, shows the importance of plants for traditional medicine in Timor-Leste. Available data on distance and journey time to get to health facilities, something like 30 kilometres and 60 minutes in rural areas, show that, frequently, the most viable alternative for people is traditional medicine (DNE 2008). During our field missions we were able to confirm how important traditional medicine is, and how extensive are both knowledge and practice by rural communities.

In coastal areas provisioning services concern mainly fish and aquatic plants and, more recently, recreational activities such as diving. Most of the fish in the seas of Timor-Leste is captured with the use of canoes and traditional fishing techniques, which should presumably guarantee the sustainability of this activity. Traditional fishing is important for most coastal communities because it constitutes simultaneously an important source of protein and of income.

Besides direct services delivered by the ecosystems in Timor-Leste one must also take into consideration indirect services. The most important of these services provided by forests, in the short run, is water supply for domestic use and agricultural irrigation. Both services contribute significantly to that part of human well being that we have called basic material for good life. Forest vegetation is also an important source of food for domestic animals and of organic matter necessary for mulching and fertilization.

Regulating and Supporting Services

Despite the fact that one can theoretically distinguish regulating services from supporting services, in practice it is frequently uneasy to make the difference. Regulating and supporting services provided by forest and non-productive land use will, therefore, be dealt with together. Timor-Leste’s forests are the centre of origin of two important species, sandalwood and *Eucalyptus urophylla* that constitute a source of germplasm of major international significance. *Eucalyptus urophylla*, one of the few eucalypts not indigenous to Australia, has been used to obtain hybrids that are the basis for paper pulp industry all over the world. In the past, seed collecting expeditions came to Timor-Leste, but today there is poor information on native stands, namely their location, conservation status and long-term security (Old et al. 2003).

Forests in Timor-Leste also provide protection of watersheds and flood regulation; soil formation, stabilization of soil cover and erosion control; water purification and supply of water for domestic consumption and agricultural irrigation; nutrient cycling; primary production; shelter and nursery for wild fauna and flora; waste treatment and control of waste degradation. This last service is particularly significant outside the city limits of Díli where, unlike the rest of the country, there is a formal system of waste collecting and disposal. Everywhere else waste treatment is left in the hands of nature, some ending up in rivers and washed to the sea.

The continuity of these services may be endangered, though, if the annual loss of soil, estimated at 26 tons per hectare and per year (the world average is about 10 tons), and the annual rate of deforestation, estimated at roughly 1,1% per year (four times the world average), are not reduced. These losses may have unpredictable consequences in ecological, economic and social terms in a near future (Mota 2002). Loss in production capacity of agricultural land, for instance, has already been observed in seven of the country's districts with an estimated annual loss of 279 hectares of rice land due to river intrusion, corresponding to an approximate annual loss of paddy production of USD 80,500 (NDFWR 2004).

Cultural Services

Cultural services provided by resource use are essentially based on the sacred land use, and therefore we will devote most of this subheading to this particular pattern of land use. Sacred land provides key elements that are the founding pillars of Timor-Leste's cosmology and of traditional societal features such as land tenure, rules of natural resource management, marriage and settlement patterns. Sacred land does not provide cultural services only, though, but undoubtedly its contribution to the well being of people in rural Timor-Leste relates predominantly to its cultural dimension.

Simplistically, sacred land consists, here, in the *lulik* occupation of land. The concept of *lulik*, which means holy or sacred, designates a force that can be simultaneously, and paradoxically, dangerous and favourable. As Cinatti (1965) describes it, *lulik* is “A energia que atrai e repele, que mata e ressuscita...” - “The energy that attracts and repels, that kills and resurrects...”. *Lulik* grounds are characterised by their sacred status, associated taboos and rules of behaviour and

management. For most Timorese, land is core to all spirituality, this connection being central in issues of great significance to people's everyday life. Timor-Leste's cosmology itself is inextricably bound to the perception of land as a sacred entity. Spirits of nature, such as *Rai Nains* (spirits owners of the land) and the *Bée Nains* (water lords) are central because they are supposed to help people in protecting and accessing water and food. In order to guarantee the goodwill of these spirits, communities perform, therefore, several rituals and ceremonies in their honour.

Sacred areas concern many uses of the territory, such as sacred houses, land, forests, groves, trees and water and the altars associated with them; they are also home for totemic animals (i.e. crocodile- *crocodylidae* and Toque-*platydactylus gottutus*) and plants, namely trees (i.e. *ficus*, either *spp.* or *benjamina L.* and *Tamarindus indica*). Ground considered *lulik* can vary from a few trees to a mountain range, and their boundaries may not be fixed. It is common throughout Timor-Leste, from the sacred groves of Lautém district to the sacred mountain known as Datoi, in the western boundary of Bobonaro, from Bemalae lagoon (Bobonaro) to the Betel nut forest of Oecussi. Despite the fact that they are everywhere there are no estimates on the extent of *lulik* lands.

Sacred land is above all a powerful instrument of social regulation and cohesion. Incidentally, the main reason Timorese give for going back to their native land and the main advantage they attach to be living and working in their own land, is precisely the spiritual power of the land (Bovensiepen 2009: 326-328; and authors field notes). In its turn, the "sacred house", *uma lulik*, is the most important element of the Timorese social structure since it is the heart of all life. One or more groups of descendants, composed of all the members of a lineage referring to a common ancestor, are linked to a "sacred house", which determines family alliances and settlement patterns.

As Trindade said "The importance of the *uma lulik* for the people of East Timor cannot be overstated. The sacred house embodies the ethos of communal unity and the binding relationships between the people, the land and their ancestry..." (in Castro 2007:38). Austronesian houses, including Timorese sacred houses, are well known in anthropological literature as being much more than mere shelters. They represent important social spaces and local cosmologies (Traube 1986); they link extended families and are therefore the prerequisite for guaranteeing the "flow of life" (Fox 1980). *Uma Lulik* is both a sacred house (a true place) and a metaphorical 'sacred house' in the sense of a broader spiritual and relational home an individual owns

worldly” (Castro 2007:19). Sacred houses are, thus, a key element in the cultural services provided by ecosystems most especially with reference to “identity / sense of place / feelings of “being at home” and “spiritual enrichment”.

Sacred houses are critical to social organisation; they represent social hierarchies and define marriage systems and exchange rituals that reproduce Timorese society, including patterns of political leadership and power. McWilliam (2005) stresses the cultural significance of these houses as repositories of knowledge representing the moral order of society and its role as “houses of origin and alliance” and illustrates this idea with the case of underground resistance structures. Underground structures during the resistance to the Indonesian occupation were organized according to house-based affiliations of trust and duties between descendants and allies. Besides social cohesion, house affiliation is crucial to ensure both access to resources and personal safety.

The sacred dimension of land is also critical for establishing rules of natural resource management. In this respect *tara bandu* plays a key role. According to Demetrio do Amaral de Carvalho from Haburas Foundation, and winner of the Goldman Prize in 2004, “*Tara Bandu* is an East Timor tradition, a customary law that we recognize as traditional ecological wisdom. It involves a kind of agreement within a community to protect a special area for a period of time“; usually it prohibits the use of certain areas taken as sacred, but is not *exclusively applicable* to sacred sites (Carvalho 2004). The prohibitions usually concern harvesting crops, cutting trees, collecting forest products and hunting or fishing. *Tara bandu* is a custom that regulates the relationship between humans and the environment. Ritual prohibitions, or *tara bandu*, are widespread throughout Timor; however, the ways in which it is applied and the term employed to describe it vary across the territory. Sacred sites, therefore, contribute significantly to the regulating and supporting dimension of well being, preserving areas around water sources or forests ecologically useful to maintain water flows and avoid erosion. More importantly, they contribute to maintaining biological diversity

Traditional practices linked to sacred land play an important role in developing social capital and enhancing social well-being, e.g. the loss of important ceremonial practices contributes to weakening social relations in the community. On the other hand affiliation with an *uma lulik* constitutes a safety network, providing access to natural resources, for example. Sacred houses and other sacred places, like sacrificial shrines (sacrificial altar sites) and sacred water sources are basic to East Timorese social organization and social cohesion. To be able to express their faith and their values,

namely by performing traditional ceremonies in public demonstrations, increases people's feeling of security and reduces their vulnerability. These performances can also act as tools to empower people. Thus, protecting sacred places in Timor-Leste is critical to strengthen its culture, and thereby its cultural identity and status as a sovereign nation.

HUMAN RIGHTS BASED APPROACH IMPLICATIONS IN PRACTICE

How does a human rights-based approach to development translate into practice in the case of the role of forest and non-productive land use in the well-being of rural Timor-Leste? Traditional development approaches to land use usually start from the identification of what was called here provisioning services to move on to propose more efficient and productive uses, i.e. generating more income. A human rights-based approach acknowledges the need for such an exercise, but also recognizes that well-being is a multidimensional concept and, thereby, that other services must be considered and material wants pair with immaterial aspirations. The heart of the matter concerns the principles upon which a development policy for rural areas of Timor-Leste, that considers on an equal footing provisioning, supporting, regulating and cultural services, should be designed.

Supplying these different services implies a double condition of sustainability. First, on account of the indivisibility of rights, the provision of each of the services has to be sustainable with the ability to provide the others not only in the future but also in the present. A productive (i.e. commercial) and non-productive (i.e. non commercial) use of land, for example, must be made compatible in the same way as one person's freedom ends where another person's freedom begins. When this is impossible to achieve it is, on the other hand, the duty of a human rights-based approach to development to make sure that the rights of the most fragile layers of society are secured first. In this sense it is necessary to preserve large parts of traditional land use because there are no obvious substitutes to secure the well-being of poor rural communities.

Second, a sustainable use of the resources is fundamental to secure the human right to a clean and healthy environment. Indeed, the UN General Assembly in its 1994 resolution 45/94 recognized that all individuals are entitled to live in an environment

adequate for their health and well-being and to have the environment protected, for the benefit of present and future generations. The sustainability issue is all the more critical since securing human rights in general does not consider any sort of term beyond which it would be acceptable for a human right to be no longer secured. In other words securing human rights implies guaranteeing intergenerational justice in the use of resources (see Gosseries 2008) and thereby its sustainable use.

Sacred land use responds positively to this double sustainability requirement and thus constitutes an indispensable instrument for securing well-being along the lines of a human rights-based approach to development. Through *Tara Bandu*, for example the sacred dimension of land contributes to the preservation of forests, mountains and other geographical formations and thus to the supporting and regulating services delivered by ecosystems. This function of culture is all the more crucial that unsustainable exploitation of resources is historically responsible for the near disappearance of sandalwood, Timor-Leste's most renowned richness.

Besides supporting and regulating services, sacred land not only supplies direct provisioning services but it also contributes indirectly to the overall development process. Describing the functions of the Timorese sacred house, Andrew McWilliam sustains that "With a common ancestry identified, ceremonies and rituals taking place in the house re-affirm ties to ancestral generations, unify extended family members and bind them to each other and to the specific geographic territory associated with the house" (apud Castro 2007:19 and 20). Culture can, therefore, act as a tool to empower people, protecting sacred places in Timor-Leste being critical to strengthen its cultural identity and status as a sovereign nation. Despite the small size of the country let us not forget that more than 30 ethno-linguistic groups share the territory.

Culture in general, and sacred land use in particular, in Timor-Leste, as in many other parts of the world, is, therefore, a decisive instrument for nation building. When trying to explain why the industrial revolution started in England, David Landes brought forward the fact that this country had the early advantage of being a nation, taken not only as a territory but also as something close to what could be called a cultural entity. According to Landes, the importance of national identity lies on the fact that it helps reconciling social purposes and individual action (Landes, 1999). Moreover, several studies show that the only countries that have succeeded in development in recent decades are those that kept intact the spine of their culture, such as Japan and South

Korea for instance (Dockès, Rosier, 1988; Latouche, 1992; Lê Thành Khôi, 1992; Morishima 1982).

The human rights principles of accountability, equality and universality raise one other crucial question concerning the identity of the services provided and therefore, the identity of the provider and the forms of ownership. First, the great majority of the services provided by ecosystems can be considered public or common pool goods and services. In this case common ownership applies and the *lulik* function of land emerges as a compatible resource management system. Second only public or common provision of those goods and the services that are necessary to secure human rights responds to human rights principles. Private provision cannot comply with the conditions of universality, equality and accountability for instance (Branco 2009). Indeed, markets have no mechanisms to ensure that everyone, regardless of their ability to pay, has equal access to the services necessary to secure human rights, such as water for example.

Likewise private providers are not accountable. If the state fails in ensuring an individual his or her right to water the State is accountable either legally in a court of law or politically through elections. If the market fails in ensuring human rights, whom should an individual turn to (see Branco and Henriques, 2010: 151)? Therefore, in the absence of a widespread public service resulting partly from the young age of the country, traditional mechanisms of managing natural resources inscribed in Timorese culture are vital to secure both people's well-being in the present and sustainable use for the future.

CONCLUSION

Just like in many other developing countries, ecosystems performs a crucial role in the development of rural areas in Timor-Leste and in the process of achieving a higher standard of well-being. Timor-Leste's world is diverse and complex, with a specific cultural matrix that has survived Portuguese colonisation, Japanese invasion, Indonesian occupation, transition process conducted by the United Nations towards the restoration of independence and the early stages of a newly independent nation. The diversity and complexity of the cultural matrix have also been decisive to determine the patterns of land use that are observed in the country.

Due to their cosmology and heavy dependency on natural resources, the people of Timor-Leste have established a very close relationship with nature, which provides them with essential goods and services such as water, land, food, firewood, building materials and spiritual enrichment. Many of the goods and services that support well-being have a public or common pool good nature, which means that they do not have a market value and, therefore, are not subject to commodification. In this sense, rather than a factor in resisting development, culture in Timor-Leste seems more likely to be an instrument in resisting to the commodification of nature.

In Timor-Leste people and ecosystems have established a close and holistic relationship, ecosystems providing not only economic benefits but also important cultural services. In short, as shown above, all land uses, land services and constituents of well-being are interconnected and contribute to the ultimate well-being benefit of “freedom of choice and action”. In spite of all the efforts made by the international community and the Timorese governments, the country still ranks 134th out of 185 in the human development index (HDI) (UNDP 2013), while in the human poverty index (HPI-1) Timor-Leste ranks 122nd out of 135 countries (UNDP 2009). In their struggle to pull out from its actual stage of poor human development, Timorese people should not be misled, though, and just concentrate on exploiting the economic value of its ecosystems. There is still a long way to go before Timorese people can enjoy acceptable levels of well-being and this article suggests that this journey will more likely be abridged with their culture than without it.

REFERENCES

Banfield, E. (1958) *The Moral Basis of a Backward Society*, Glencoe, IL: The Free Press.

BirdLife International. 2010. In Timor-Leste, in 2007, three IBAs were linked and protected as the first National Park. Presented as part of the BirdLife State of the world's birds website. Available from: <http://www.biodiversityinfo.org/casestudy.php?r=response&id=231>, (Consulted 11 April 2010).

Bovensiepen, Judith. 2009. “Spiritual Landscapes of Life and Death in the Central Highlands of East Timor”, *Anthropological Forum*, 19(3): pp. 323–338.

Branco, M. (2012) *Economics Against Democracy*, Review of Radical Political Economics, 44(1): 23-39.

Branco, M. (2009) *Economics Versus Human Rights*, London Routledge.

Branco, M. and Henriques, P. (2010) *The Political Economy of the Human Right to Water*, Review of Radical Political Economics, 42(2): 142-155.

Carvalho, Demétrio do Amaral. 2004. Demetrio do Amaral de Carvalho champions East Timor's environment, Goldman Environmental Prize 2004. Available from <http://www.grist.org/article/nijhuis-carvalho/> (consulted: 11 April 2010).

Castro, Jose 'Josh' Trindade Bryant. 2007. Rethinking Timorese Identity as a Peacebuilding Strategy: The Lorosa'e – Loromonu Conflict from a Traditional Perspective. The European Union's Rapid Reaction Mechanism Programme Technical Assistance to the National Dialogue Process in Timor-Leste.

Cinatti, Ruy. 1950. Reconhecimento de Timor, Relatório de Tirotório do Curso de Engenheiro Agrónomo, Instituto Superior de Agronomia, Lisboa.

Cinatti, Ruy. 1965. "A pescaria de Be-malai: Mito e Ritual", *Geographica*, 1: pp. 32-51.

Cinatti, Ruy, Leopoldo de Almeida and Sousa Mendes. 1987. *A Arquitectura Timorense*, Lisboa: Instituto de Investigação Científica Tropical /Museu de Etnologia.

DEZA (Direktion für Entwicklung Zusammenarbeit) (2007) "HRBA-Tool, Draft October 2007". Available at http://www.deza.admin.ch/.../resource_en_160216.pdf, (consulted 16 June 2013)

De Kadt, E. (1999) 'L'Enjeu Culturel et les Chances de la Santé dans un Contexte International', in G. Rist (ed), *La Culture Otage du Développement*, Paris: L'Harmattan, pp 149-173.

DNE (Direcção Nacional de Estatística), 2006. Census da população e da habitação 2004, Atlas. Díli: Direcção Nacional de Estatística e United Nations Population Fund.

Dockès, P. and Rosier, B. (1988) *L'Histoire Ambigüe: Croissance et Développement en Question*, Presses Universitaires de France, Paris.

Fox, James (ed.). 1980. *The Flow of Life: Essays on Eastern Indonesia*, Cambridge, MA: Harvard University Press.

Fukuyama, F. (2000) 'Social Capital', in Harrison, L. and Huntington, S. (eds), *Culture Matters: How Values Shape Human Progress*, New York: Basic Books, pp. 98-111.

Fukuyama, F. (1995) *Trust: The Social Virtues and the Creation of Prosperity*, New York: Free Press.

Gosseries, A. (2008) "Theories of intergenerational justice: a synopsis", *SAPIENS*, 1(1): 61-71.

Gusmão, Marçal. 2003. Soil conservation strategies and policies for East Timor, Project submitted for partial fulfilment of the requirements for the degree of Master of Soil Management and Conservation.

Hagen, E. (1962) *On the Theory of Social Change*. Homewood, Ill.: Dorsey.

Harrison, L. and Huntington, S. (eds) (2000) *Culture Matters: How Values Shape Human Progress*, New York: Basic Books.

Hoselitz, B. (1952) "Non-economic Barriers to Economic Development" *Economic Development and Cultural Change* 1(1): 8-21.

Huntington, S. (2000) 'Foreword: Cultures Count', in Harrison, L and Huntington, S. (eds), *Culture Matters: How Values Shape Human Progress*, New York: Basic Books: xiii-xvi.

Lal, D. (1999) 'Culture, Democracy and Development: the Impact of Formal and Informal Institutions on Development', paper presented at the Conference on Second Generation Reforms of the International Monetary Fund. Online. Available HTTP: <www.imf.org/external/pubs/ft/seminar/1999/reforms/lal.htm> (Consulted: 24 January 2006).

Landes, D. (1999) *The Wealth and Poverty of Nations: Why Some Are So Rich and Some So Poor*, New York: Norton & Company.

Latouche, S. (1992) *l'Occidentalisation du Monde*, La Découverte, Paris.

Lê Thành Khôi (1992) *Culture Créativité et Développement*, L'Harmattan, Paris.

Lipset, S. M. (1959) 'The Social Requisites of Democracy: Economic Development and Political Legitimacy', *American Political Science Review*, 53: 69-105.

McWilliam, Andrew. 2005. "Houses of Resistance in East Timor: Structuring Sociality in the New Nation", *Anthropological Forum*, 15(1): pp. 27-44.

MEA (Millennium Ecosystem Assessment) (2003) *Assessment: Ecosystems and Human Well-being: A Framework for Assessment*, Island Press.

Mead, M. (ed) (1953) *Cultural Patterns and Technical Change*. Paris: Unesco.

Morishima, M. (1982) *Why has Japan Succeeded? Western Technology and the Japanese Ethos*, Cambridge University Press, Cambridge.

Mota, F. (2002) *Timor-Leste: As novas Florestas do País*. Ministério da Agricultura e Pescas,

Myrdal, G. (1968) *Asian Drama: an Inquiry into the Poverty of Nations*. New York: Twentieth Century Fund.

Narciso, Vanda and Pedro Henriques. 2008. 'Gender and Development: the Role of Women and its Relation with Land in East Timor', paper presented at European Association for Evolutionary Political Economy Annual Conference, *Labour, Institutions and Growth in a Global Knowledge Economy* held in Rome on 8 November 2008.

NDFWR (National Directorate of Forestry and Water Resources). 2004. Policy and Strategy Forestry and Watershed subsector, Ministry of Agriculture, Forestry and Fisheries (MAFF), Díli.

North, D. (2004 [1990]) *Institutions, Institutional Change, and Economic Performance*, Cambridge University Press, Cambridge UK.

OHCHR (2011) *The Human Right to Water and Sanitation: Frequently asked questions*. Available at <http://www.ohchr.org/Documents/Issues/Water/FAQSanitationAndHR.pdf> (consulted: 26 May 2013).

Old, Ken, Mario Nunes and and Tim Vercoe. 2003. Forestry — for economic, social and environmental benefits, in ACIAR Proceedings No. 113, Agriculture: New Directions for a New Nation — Timor-Leste, Edited by Helder da Costa, Colin Piggin, Cesar J. da Cruz and James J. Fox.

Rawls, J. (1972) *A Theory of Justice*, Cambridge MA: Belknap Press of Harvard University Press.

RDTL. 2005a. Natural resources and Environment: Priorities and Proposed Sector Investment Program, Several Ministries, Díli.

RDTL. 2005c. Agriculture, Forestry and Fisheries, Priorities and Proposed Sector Investment Program, Several Ministries, Ministry of Agriculture Forestry and Fisheries, Díli.

Reis, Luís Manuel Moreira da Silva. 2000. Timor-Leste, 1953–1975: O desenvolvimento agrícola na última fase da colonização portuguesa, Tese de mestrado em Produção Agrícola Tropical, Universidade Técnica de Lisboa, Instituto Superior de Agronomia, Lisboa.

Rostow, W. W. (1960) *The Stages of Economic Growth: A Non-Communist Manifesto*. Cambridge: Cambridge University Press.

São Tomás, Frei Alberto de. 1969. *Virtudes de Algumas Plantas da Ilha de Timor*, Ministério do Ultramar, Lisboa.

Sen, Amartya Kumar. (2000) *Development as freedom*, First Anchor Books Edition.

Silva, Hélder Lains e. 1956. *Timor e a Cultura do Café*, Memórias – Série de Agronomia Tropical, Junta de Investigações do Ultramar, Ministério do Ultramar, Reeditado por TimorAgri.

Soeiro de Brito, Raquel. 1971. “Ocupação do Solo no Timor Português”, *Geographica*, 27: pp. 1-29.

Traube, Elizabeth. 1986. *Cosmology and Social Life: Ritual Exchange among the Mambai of East Timor*, University of Chicago Press, Chicago.

UN (2010) *General Assembly Adopts Resolution Recognizing Access to Clean Water, Sanitation as Human Right, by Recorded Vote of 122 in Favour, None against, 41 Abstentions*, <http://www.un.org/News/Press/docs/2010/ga10967.doc.htm> (consulted: 18 May 2011).

UNDP (2013) *Human Development Report. The rise of the South, Human Progress in a diverse world*. Available at http://issuu.com/undp/docs/hdr_2013_en?e=3183072/1754153 (consulted 26 June 2013).

UNDP (2009) *Human Development Report: Overcoming barriers: Human mobility and development*. Available at http://hdr.undp.org/en/media/HDR_2009_EN_Complete.pdf (consulted 26 June 2013).

Weber, M. [1905] (1958) *The Protestantism Ethic and the Spirit of Capitalism*, Chicago: Scribner's Sons.

World Bank. 2008. *Policy note on population growth and its implications in Timor-Leste*. The World Bank Washington, D.C..