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Cambodia's commons :
Changing governance, shifting entitlements ?

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1. The significance of Natural Resources in Cambodia

1.1 The supply side : endowments

Fish are like people: confronted with danger, they move [1]

Is Cambodia a nation of fishermen that – incidentally - grow rice, or of rice producers that also catch fish? To debate this question is just as futile as discussing the sex of angels, because the answer lies beyond easy categorization. Frescoes preserved at the temple complex of Angkor Wat give a vivid historical illustration of the importance of all natural resources, principally wetlands and forests, to sustain the daily needs of the rural people. The annual flood cycle of the Mekong and Tonle Sap River, with a unique hydrological system of reversed flow during the wet season[2], inundates and fertilizes the floodplains and forests and swells the surface area of the Tonle Sap Lake from 2600 to 10,000 square kilometers - turning it episodically into the largest freshwater lake in Southeast Asia and supplying sufficient water for growing rice, the main staple[3]. A thousand years on, the temple complex has crumbled but the majority of Cambodians still depend for their survival upon the living they manage to extract from the waters and forests. Apart from the sustenance derived from upland and lowland forests that cover about 50% of the total land area, the extraction of that ecological wealth is predicated largely upon the interrelation of land and aquatic environments, which come in many types: permanent water such as lakes and rivers, permanent and seasonal ponds, flooded forests and grasslands, inundated rice fields etc.

Given all that, the typical livelihood strategy is a finely tuned balancing act based on access to agricultural land, usually held as private property, and fisheries and forest resources. Where people do not participate as producers, they benefit as consumers. A limited number of people for instance reside in or near forests, yet wood is the main source of fuel: in 1994, firewood accounted for 82.8 per cent of total energy consumed. With regard to fisheries, the Department of Fisheries considers a majority of Cambodia's provinces to be freshwater fisheries provinces. At least 4 million people in Cambodia depend on inland fishing for their livelihoods, as the primary or secondary source of income and employment. Most rural and many peri-urban households fish occasionally, for household consumption and added income. Harvesting the astonishing diversity of freshwater fish that are home to these rivers and wetlands is the main source of animal protein for much of the country's population. Cambodia's total freshwater capture fishery production is estimated at 400,000 tons annually (valued at US$ 350 million), 235,000 tons of which is from the Tonle Sap Lake. Some estimates suggest a consumption of 75kg of fresh and processed freshwater fish per annum for the population living near these aquatic resource bases[4]. In a word, virtually all Cambodians benefit from inland fisheries in one way or another, making it a key asset in the fight against poverty and for food security. In the context of Cambodia however, it would be a serious analytical 'faux pas' to associate aquatic resources exclusively with fish, or forest resources exclusively with firewood or timber.

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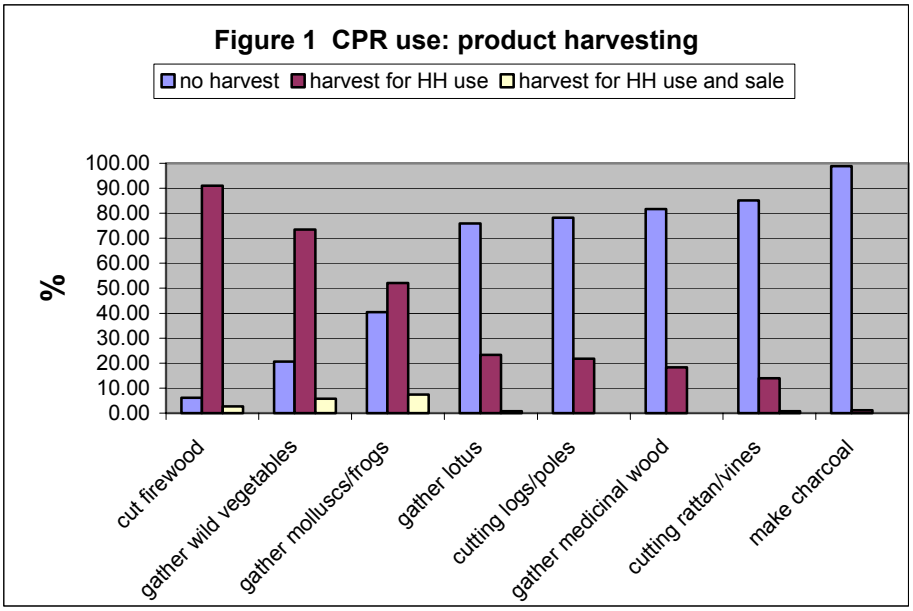
[1] Halting degradation of natural resources *Is there a Role for Rural Communities?* Platteau J.P., Baland J.M., Food and Agriculture Organization of the United Nations,1996.

[2] In addition, there are the Stung Sen river system in the uplands and the coastal estuaries of the Stung Kaôh Pao and Stung Kep that account for Cambodia's impressive natural wealth.

[3] Rainboth, W.J., FAO species identification field guide for fishery purposes: Fisheries of the Cambodian Mekong, Rome, 1996.

[4] For the above data, refer to: Van Zalinge et al., 1998; Ahmed et al., 1998; Kenefick, 1999.

For instance, other freshwater resources commonly harvested and consumed by rural households include shrimps, snails, frogs, crabs, insects, vegetables such as morning glory and freshwater lily, lotus stalks, flowers and roots, and firewood harvested from flooded forests. A catalogue of forest resources other than timber came up with a list of 400 different products regularly harvested by local people. The literature in general assumes that these resources provide a form of insurance against livelihood risks through diversification and a way to optimize the use of household labour with minimal to zero marginal costs and capital investments. Indeed, quite often the household members that go out hunting for snails, frogs, crabs and the like, are children. Figure 1 demonstrates the importance for livelihood strategies of the 3 main freshwater products other than fish, notably firewood (from flooded forests), wild vegetables, and small aquatic animals. There is a real 'incidence gap' after these three, going from more than 50% engaging in each of the 3 'core' CPR activities to less than 25% engaging in each of the other types of CPR activity[5].



Predictably, this tale of cornucopia must have its contre-temps. Apart from external threats such as dam-building and rapids-blasting programmes in the upper Mekong and its tributaries in Laos and Vietnam, a range of domestic problems affect inland fisheries and forestry. These include, interdependently, poverty and population growth, governance, and environmental degradation. About 36% of Cambodians live on income below the poverty line of US$14 per month. GDP per capita is one of the lowest in the region. Poverty remains widespread especially in rural areas, where an estimated 90% of poor people live. In recent years moreover, growth remained sluggish in the agricultural sector, precisely where greater economic activity could contribute most to improve the quality of life of the rural poor[6]. The scarcity of alternative livelihood options leaves fisheries, together with hunting and gathering in forested areas, as a last resort for the poor. Easy access to these resources and low entry barriers in terms of technology induce growing numbers of people to enter the sector, including thousands of upland people that migrate seasonally to the fishing

[5] Van Acker, F., fisheries governance and access survey in Cambodia, 1999 (unpublished); The results are based on an in-depth household survey of a random sample of 257 respondents in 17 villages in the provinces of Kampong Thom, Kampong Chnang, Prey Veng and Kandal. All the villages selected are in the vicinity of both permanent and seasonal waterbodies and can be considered as dependent on both aquatic and agricultural resources.

[6] Asian Development Bank 2002, Cambodia 2002 Consultive Group Meeting, ADB Contributions to the Policy Debate, Phnom Penh, June 19-21, 2002.

grounds. Moving in the opposite direction, thousands of lowland people migrate to forest-rich upland provinces such as Ratanakiri, populated by ethnic minorities. In so doing they jeopardize the ways of life of these tribal people, including their traditional management systems of the natural resource base.

Given the lack of alternative rural livelihoods, the population growth of 2.4% has sharply increased the demands on the total rural resource base. The effect is a "total harvest approach" of unrestrained exploitation. The problems that result from the dramatic increase of the pressures on Cambodia's natural resources manifest – inter alia – as (i) pressure on marginal land resources, in particular on the flooded forest which is overexploited for fuel wood and destroyed by conversion into farmland, (ii) the use of destructive fishing gear, and (iii) the clear-felling of Cambodia's remaining deciduous forests. In fisheries, brood stock for reproduction is increasingly coming under pressure with the use of techniques that do not discriminate in terms of catch sizes. The trend in gill-nets for example is toward ever decreasing mesh size. There are indications of selective over-fishing. Unlike certain fish species that need more time for reproduction, species like small migratory white fish species that can reproduce within the limits of a one year cycle, are more resilient to fishing pressure. While the total fish biomass seems to be stable, the biodiversity of the stocks is threatened (cf. Figure 2). To the extent that the component of larger species in the total catch volume is diminishing, the total value of the catch and the value per unit of effort decline, thus devaluating the profitability of fishery (Van Zalinge et al. 1998). In forestry, the forest area declined from 73% before 1960 to an estimated 58% of land area by 2000. The actual figure is probably much lower, given that no comprehensive forest cover survey has been conducted since 1997 and remaining forests are often severely degraded. Overall, pressure on natural resources and the environment translate as food security problems: nearly half of the provinces are food deficit areas[7].

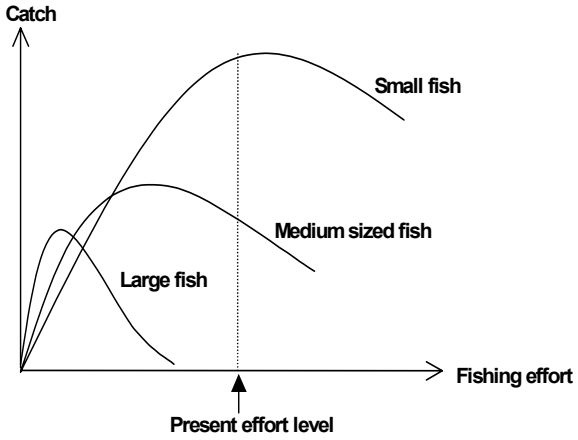
1.2 Entitlements: the demand side

Even so, an overemphasis on the supply side and the underlying Malthusian crisis, seeing these problems mainly as a failure of production involving a limited resource base and a growing population, inhibits a look at the demand side and the issue of governance, notably property rights. How are potential beneficiaries excluded and how are yields allocated? How do property rules structure human relationships and affect participation in decisions? Since Amartya Sen analyzed the occurrence of famine in the midst of plenty, food deficits have come to be understood in a wider perspective as a breakdown of food entitlements (opportunity sets), or a denial of the rights of access to food[8]. It is the difference between 'endowments' and 'entitlements', or resources and the ability to use their benefits, that is central. Highlighting the demand-side of Cambodia's natural resource problems would therefore entail a focus on the relationships between people and these natural resources: access to the resource per se, but more importantly access to the decision-making process governing the modalities of use of forestry and fisheries resources. As stated, local livelihoods are based on complex linkages between the exploitation, both as a shared and temporarily privatised resource, of permanent and seasonal land, water and floodplains. The complexity arises because the distinction between users and the type and scope of access they enjoy, is made on the basis of diverse criteria: spatial, seasonal, or spatial and seasonal. A given piece of land, even one's very homestead, can fall under

[7] Cambodia is classified as a Low-Income and Food-Deficit Country (LIFDC) by the FAO http://www.fao.org/spfs/lifdc-e.htm.
[8] Sen, A. (1982). Poverty and Famines, An essay on Entitlement and Deprivation, Oxford University Press.

different property regimes according to whether it is flooded or dry. The intricacies of this already multifaceted property regime, are sharpened in step with the increasing pressure on the resource base. This growing complexity is expressed in terms of the heterogeneity of resource users, their assets (technology), and discount rates of the future[9].

Figure 2: Cambodian Tonle Sap Great Lake and River fisheries. Hypothetical approximate state of exploitation of large, medium and small migratory fish species.



Source: Van Zalinge et al. 1998

These evolutions have themselves taken place in an institutional setting that for the past decade associated the move from a command economy to a market economy with privatization, often without concern for the consequences to local people's livelihoods. Cambodia's legal culture itself is no help in this. It stems from a communist past that did not provide separation between the courts and the government. The economic opportunities provided by the rapid liberalization created a climate of crime and impunity. There have been many cases where irrefutable evidence exists of unlawful activities, yet the culprits got away scot-free because of their status as public servants or members of the security forces, or their adherence to particular parties. The possibility of moral hazard in coordinating users' strategies – free-riding or other opportunistic behavior - is therefore very real.

Entitlements are not god-given and can - even must - be changed, where access to the benefits of common-pool resources accrues to a few wealthy individuals that have managed to lock out the majority of destitute peasants. In the face of mounting pressure on the resource base, coordinating user strategies is paramount for two reasons: maintaining the sustainability of the resource base for future growth (supply), and equitable access (demand). The Government of Cambodia's concise strategic motto, by proclamation the shared objective of all Cambodians, is "*Poverty reduction through high economic growth over the long term by ensuring environmental sustainability and social equity*." This adage encapsulates the dimensions of preservation of the resource base as well as the distributive aspects associated with access to the resource flows. When shared objectives are to be implemented, how do property rules structure human relationships and affect participation in decisions, especially where interests conflict? This question is actually double-edged: do the property rules through the structuring of relationships inhibit or facilitate collective action in the field of conservation and equitable access, and can collective action change the property rules where these are found

[9] Observe however that the notion of discount rate is relative: almost everything in 500 years is worth almost nothing now.

wanting in these areas? Various disciplines (institutional economics, social psychology, anthropology, game theory…) have looked at this question, but economic theory in general has been gloomy in its outlook.

Collective action in managing the commons has, since Hardin's infamous article, been appreciated as a fundamental dilemma (a 'tragedy'). The dilemma in this and other models - the 'prisoner's dilemma', Olson's theory of collective action, the standard equilibrium solution in one-shot and iterated non-cooperative games - resides in the fact that the conflict between individual and collective rationality will be resolved to the detriment of collective well being while most – if not all – individuals will be worse off. In other words, a user's rational incentive to maximize individual utility will lead to the eventual ruin of collectively used resources. Individual actors may perceive that they will realize higher returns for a socially defecting choice than for a co-operative choice, even though all actors engaged in collective action would, in the long run, be better off by working together. To the extent that the appropriation rate exceeds the regeneration rate of the common-pool resource, the opposition of private necessity and a common good then leads to generalized predictions of sub-optimal outcomes. When considering the issue in terms of the 'production possibility frontier', the effects are twofold, both of them relevant in light of the RGC's strategic development motto. There is both a real cost to society, affecting high growth, and a transfer of resources within society, affecting social equity. The sub-optimal outcome in terms of Pareto-inferior equilibria carries an opportunity cost: collective action could improve the position of some actors without worsening the position of other actors. There is also a non-optimal transfer of resources within society intrinsic to Pareto-inferior equilibria, where the utility of some is improved at the expense of others (or even that the utility of all declines in relation to what is potentially possible).

Yet these grim conjectures do not constitute the whole picture. First, Hardin's predictions of calamity are based on confusion between the type of good (common pool) and property regime (open access), where there are no property rules to structure the human interdependence in connection to the good in question. Second, since Hardin the analysis has gradually shifted from the uncontrollable urges of utility-maximizing and undersocialized individuals, to human interdependence where actions involve issues of trust, reciprocity etc. Collective action is not difficult under all circumstances. Problems arise from insufficient information, differing interests, or the nature of the good itself. Game theorists have developed a range of games to capture common aspects of social interaction. Several types of collective action problems exist that have relevance for natural resource management. When people lack information, coordination becomes difficult despite common goals (assurance games). So, attempts of players to change the structure of the situation by coordinating strategies in the form of rules that govern resource distribution and use are definitely possible, but with cost implications related to coordination, enforcement, monitoring and information gathering. To guide this analysis, the following part will present a model that identifies a range of variables and their interrelation.

2. Situation, structure, and performance: an analytical framework to study property rights

Studying access and use of common-pool resources begins with the facts of human interdependence. The public choice of property rights (institutions) controls and directs this interdependence and shapes the oppor-

tunity sets of the interacting parties. The relative opportunities of people can be further described in terms of costs, externalities, and power. Following the template offered by Schmid, the problem setting has three major components: situation, structure, and performance (SSP)[10]. 'Situation' includes attributes of individuals, the community, and goods. Relevant attributes of individuals include preferences, values, knowledge of the rules and production functions, and information processing and decision strategies. Community attributes include the number of decision makers and the degree to which individual characteristics are shared. Goods attributes determine how one person's actions can potentially affect the welfare of another person. Different inherent characteristics create different contexts of human interdependence.

The "structure" is composed of institutional or rights alternatives. Structure can be classified in various ways. Structural variables include the type of right and which party holds it. Kiser and Ostrom (1982, pp. 193-4) have suggested a typology[11]: (1) the entry and exit conditions for participation (boundary), (2) allowable actions and allowable outcomes from interaction (scope), (3) the distribution of authority among positions, (4) the aggregation of joint decisions, (5) procedural rules linking decisions together, (6) information rules and (7) sanctions and payoff rules. While 'situation' is inherent, 'structure' is chosen. The inherent situation creates interdependence, but it is the chosen structure of rights that gives order to this interdependence and determines the opportunity sets (entitlements) of the interdependent parties. Structure determines who has the opportunity to participate in resource-use decisions and who is exposed to the externalities of these opportunities. It involves description of positions occupied by individuals, how the position is achieved, what authority (decision scope) the position entails, and which individuals are relevant and how they are weighted and aggregated.

The third component is "performance", for instance the impact of alternative rights on welfare. In a sense, performance is a function of alternative rights ('structure') given the situation. Our interest here is on substantive performance; who gets what in the framework of equitable development, and how sustainable is that development, as stressed by the RGC (Royal Government of Cambodia) in the current Socio-Economic Development Plan (SEDP II).

If rights are the instrumentality by which society controls and orders human interdependence and resolves the question of who gets what, property rights are the structuring element connecting the attributes of the good (in our analysis natural resources) to that of individuals and community (cf. figure 2). Specific to our inquiry, property rights are the bundles of entitlements governing the use of natural resources, defining (i) appropriation rights to the rents engendered by common pool resources, such as fish, and (ii) maintenance duties towards the common pool resource stock, e.g. flooded forests. Property rules are the rules that operationalize these entitlements. The measure therefore by which to judge the impact of the organisational response (performance) to a change of context is the correspondence between property rules and the ecological (sustainability) and social (equity) context. To what extent do the rules under which appropriation rights and maintenance duties are exercised absorb destructive conflicts and preserve the dynamic ability of biological systems to adapt to change?

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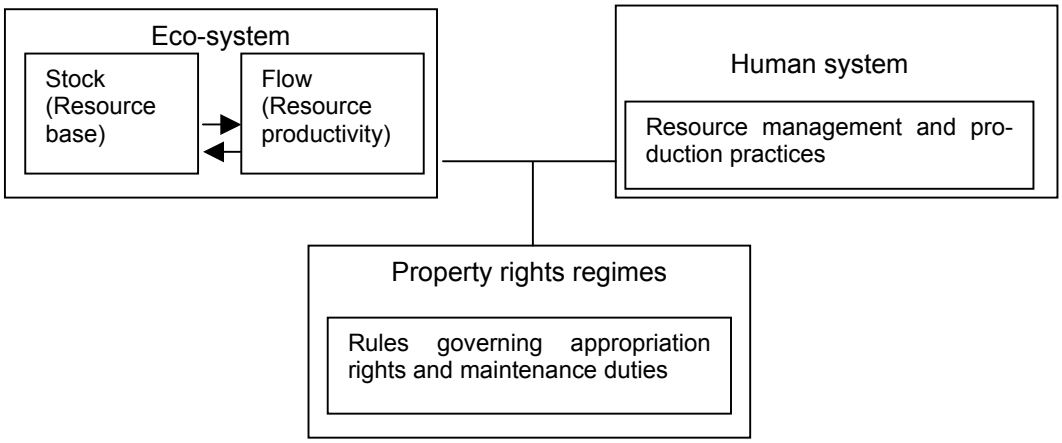
[10] Schmid A.A. Property, power, and public choice: an inquiry into law and economics, New York: Praeger, 1987.
[11] Kiser, L.L. and Ostrom, E. (1982). "The Three Worlds of Action: A Metatheoretical Synthesis of Institutional Approaches." In Ostrom, ed., Strategies of Political Inquiry. Beverly Hills, CA: Sage Publications.

Figure 2 : Property rights regimes



With the help of the template, the main question can now be reframed. How does a change in the chosen structure of property rights affect the interdependence, created by the goods attribute (common-pool resources), in terms of increased general welfare and sustainability of the resource base? To study this question, we will look at the specifics regarding the goods-attribute, the chosen structure of rights, and its impact in terms of performance.

3. Attributes of Cambodia's Common pool resources and property regimes

3.1 Attributes

Cambodia's natural resources, its forests and fisheries domain, are 'common-pool resources' (CPRs), drawn on by multiple users. Common pool resources typically consist of a stock and flow component, where a stock – e.g. a forest – produces a flow of rents (goods and services), e.g. fuelwood. These resources can be typified by two characteristics: the rival nature of consumption and the difficulty of exclusion; unlike private and toll goods, which are rival in nature but where exclusion is easy or at least workable, and different from public goods, where the difficulty of exclusion is mitigated by their non-rival nature. The nature of the common-pool resource such as a large lake, often renders the costs of exclusion prohibitive. Even limiting the access right by some means does not imply control of crucial factors that contribute to the asset value of that limited access right: the ownership of the resource units is only established upon harvest or capture. The holder of a fishing permit for example that establishes a limited access right on part of the Mekong River, may discover that the spawning grounds of the most valuable species are hundreds of kilometers upstream in the Stung Sen river system. In other words, the lack of assurance that resources not used now will be available in the future, induces the appropriators of resource rents to behave as if the resource was openly accessible to all.

Second, unlike pure public goods, one person's gain is the other's pain. The appropriation of the resource rents diminishes the availability of that resource for all others, especially when the regeneration rate of the resource in question converges towards zero. The potential dilemma, where the pursuit of individual gain produces a sub-optimal outcome from the collective point of view, includes the possibility of resource destruction. These characteristics throw up two questions specific to common property resources: how much to appropriate of the rent embodied in the system without destroying the stock, and how to share these rents. Clearly, the answers depend on the structure of rights that has been put in place to manage the aspects of

the rival nature of consumption and the difficulty of exclusion. Actors will make the best choice within a poor marginal choice set, unless coordination induces them to join with others to create a choice set that otherwise will not exist.

3.2 Property regimes: the formal governance rules

The various regimes under which common-pool resources can be managed are: (i) open access where there are no rules to control access and allocation of the resource units from the resource, (ii) common property which is characterized by the presence of a set of rules governing access to, allocation of and control over the resource, (iii) public property, where access rights for the public are held by the State. In Cambodia the *de jure* or statutory rights to natural resources such as forests and the fisheries domain, excluding privatized land under the Land Law provisions, are owned by the state and managed by different departments on behalf of the state, which has been reluctant to transfer access (and even less, ownership) rights over these resources to local communities. This indicates its misgivings that self-organized groups (civil society) will be able to overcome - without government coercion - the free rider problem associated with the production of goods characterized by high exclusion costs. If not under systems of outright collectivization under the Khmer Rouge and later the Vietnamese occupation (*krom samaki*), the use rights to the best fishing grounds and forest resources have been distributed by the state via the market through so-called forestry and fishery concession systems. The overall implication is that the government basically dissociated the economic from the social use of the resource and delegated responsibility for the economic management to the private sector[12]. This is remarkable in the light of the RGC professed commitment to equitable development. The decision in 1988 to re-privatize part of the fisheries domain after the abolition of the concession system in 1975, can only be understood on the basis of the fiscal needs of a government which had been under a sanctions regime for a decade, and which lost its access to Soviet funding in that very same year.

More specifically, forestry regulations do not recognize the rights of communities to access the resources of the forests. In 1995 the Royal Government of Cambodia (RGC), whilst involved in supposedly open discussions with various foreign aid donors regarding forestry issues, secretly awarded 32 forest concessions for commercial purposes[13]. These concessions covered 6,464,021 ha which amounts to 35% of Cambodia's total land area. In 2001, 19 concessions covered about 4.2 million ha. These concessions were awarded without forest resource assessments or consideration of environmental and social impacts. MAFF (Ministry of Agriculture, Forestry and Fisheries) reported in 2002 that 17% (751,986 ha) of all forest concessions were actually under agricultural cultivation. Fisheries regulations have been based on a concession system were access rights to productive inland fishing grounds (fishing lots) are auctioned off to the highest bidder for two year periods. The concession grants lessees temporary exclusive use rights over fishing grounds or anchor points for large-scale fishing gear. Lessees are responsible for protection of the natural habitat within lot boundaries. Specific instructions for the management of each lot are contained in a 'Burden Book' and include times of open and closed seasons, lot boundaries, access routes for the lessee, other users, and define allowable gear types and locations. The rights of communities, in theory, were safeguarded by stipula-

[12] Even the Land Law provides for the possibility of allocating large tracts of land to the private sector as agro-industrial concessions.
[13] Deforestation without limits, How the Cambodian government failed to tackle the untouchables, A Report by Global Witness, July 2002, 37 p.

ting access rights to so-called public areas and specific areas within the fishing lots for livelihood activities, accompanied by stringent conditions defined by the provisions for small-scale, family fisheries. These are defined by allowed fishing methods alone, which include a large variety of simple gears such as single hooked lines, small dip nets, cast nets and gill nets less than 10 meters in length. Small-scale gear can legally be operated anywhere and at any time except from October to June in the fishing lots and in protected areas such as fish sanctuaries. There are no similar provisions for community access in the Forestry Law. So local communities, which use forestry and fisheries resources in non-concession areas, principally have residual '*de facto'* rights.

An overview of the formal entitlement regime is presented in Figure 3. It summarizes the main variables related to structure, which uphold whose interests count. Entitlements are determined by a number of governance rules: boundary rules that determine access; authority rules that determine assignment (where and when to operate), the types of technology that may be used, and limitations on production (or appropriation) quantity and quality; and enforcement rules which determine the various dimensions of monitoring and of ensuring compliance with the boundary and assignment rules[14]. Commercial fishery and forestry are characterized by boundary, authority and enforcement rules. Access is granted to those who pay a concession fee or lease (boundary), while authority rules define the types of technology that may be used. Spatial and time limits (assignment) are defined, in the sense that there are exclusive areas assigned to forestry concessionaires, and fishing lot operators during the open season. The family fishery is formally defined only by authority rules that specify the small gear size. It can be operated anywhere and anytime, except again within the fishing and research lots during the open season (from October to June) and in other protected areas. Contrary to commercial forestry, no appropriation rules that stipulate limitations to production quantity or quality have been defined for any of the fisheries, except for the ban on fingerlings and certain protected species. Subsistence forestry, in the form of Non-Timber Forest production (NTFP) is least clearly defined formally.

Figure 3: Governance rules for freshwater capture fisheries and forestry

	Commercial Fishery	Family fishing	Commercial Forestry	NTFP
Boundary rules	Lease via auction	None (informal)	Lease	None (informal)
Authority rules: assignment	Two-year periods; Burden book specifications	Anywhere not used by fishing or research lots	25-to-30 year leases; Concession agreements (management plans)	Anywhere not inside concession areas
Authority rules: technology	Burden book specifications	Fishery Fiat Law	Concession agreements (management plans)	None (informal)
Authority rules: appropriation	Fishery Fiat Law and Law on protected species	Fishery Fiat Law and Law on protected species	Initial EIA (Environmental Impact Assesment) /management plans	Forestry Law and Law on protected species
Enforcement rules	Formally vested with Department of Fishery (fishery inspectors); de facto often privatized	Formally vested with fishery inspectors; de facto often privatized	Formally vested with Department of Forestry and FCPU; de facto often privatized	Formally vested with Department of Forestry; de facto often privatized

[14] Ostrom (1994).

3.3 Questioned legitimacy

Assigning entitlements to common pool resources via the market solicits a number of remarks. First, markets in Cambodia are underdeveloped in more ways than one. Non-capitalist social relations that result in the unequal exercise of market power, influence the functioning of markets. How to understand the introduction of an auction system for example, in the absence of a credit market and of institutional mechanisms that allowed the prior accumulation of capital? Can a market just emerge '*ex-nihilo*' in society? The reason must be found in rent-seeking activities. Leaning on Böröcz's concept of post-communist "simulated transition", the auction system can be interpreted as a "simulated allocation" that allows political capital to substitute for economic capital[15]. The economic transition commodified the state monopoly by enabling previously unpriced assets owned by the state and administered by a bureaucracy to be objects of price calculation[16]. Note that auctioning access to the commons fundamentally affects the distribution of wealth in Cambodia. It cuts out the traditional role of these commons as a 'communal bank', where distribution of access no longer ignores the distribution of private wealth.

Second and more generally, the conception of the market as an efficient allocator of goods and incomes is based on the assumption that the prices established take into account all the costs involved in the production process. Yet in the case of common pool resources, the aggregate demand for a specific resource tends to over-estimate the social benefits and under-estimate the costs imposed upon society: they exist as externalities that affect the private costs incurred by others. Indeed, one could argue that profitability of the commercial concessions hinges on the very ability to create externalities for the other users, which are legally invisible since they do not occur to legally recognized property.

Third, the parallel modes of access, subsistence vs. commercial, reflect rival modes of legitimacy (formal rules vs. customary or informal norms) not yet resolved by a rapid societal transition. Subsistence fishing for example can only take place where and when no commercial operations, licensed by the state, are active. However it is not because the state decrees a new system of property rights, that more informal access rights have lost their legitimacy in the eyes of local users. Indeed, Bromley defines a property rights as "*the capacity to call upon the collective to stand behind one's claim to a benefit stream*"[17]. Ownership distribution of opportunities rests on a consensus of legitimacy. Actually, it could be argued that the frequent and sometimes total and abrupt changes in Cambodia's property rights systems during the last 5 decades, have only helped to strengthen the legitimacy of traditional/informal access rights for the rural majority dependent on shared resources. Without doubt, the legitimacy of the formally defined entitlement relations has been contested and ownership cannot be imposed without additional expenses for enforcement by the commercial rights holders themselves. Figure 4 gives an indication of the nature of enforcement in the fishing concession areas in 2000. The role of the military has often been to work hand-in-glove with the concessionaires, in exchange for exclusive rights to a section of the concession. For example in forestry, military detachments operate illegal sawmills in exchange for concession protection. In fisheries, in Kompong Thom province for instance the operator of former fishing lot #6 used to closely co-operate with a military division based inside the lot area. The military cordoned off the fishing lot area the whole year round (open AND closed season) in

[15] Böröcz (1995).
[16] For a study of the case of China's economic transition, refer to: Commodifying communism, David Wouk, Cambridge University Press.
[17] Bromley, D., Environment and economy: property rights and public policy. Cambridge, MA, Basil Blackwell, 1991.

exchange for exclusive rights to certain parts of the fishing lot[18]. Since the reforms, practices have not abated. For example, the military base Voreak 50 located in Koh Tkouv Commune (Kampong Chnang province) is extremely influential in the area. "*Soldiers are involved in protectingillegal fishing operations and threaten villagers. When villagers made a complaint letter against them, the (community fisheries) committee members received death threats leading to the resignation of the entire CF committee*"[19].

Figure 4: Enforcement in fishing lots in selected provinces around the Tonle Sap Lake

Province	# of lots	# of guards	Average # of guards employed by lot owner	# weapons used by lot owner*	Average # of weapons used by lot owner	# arms per guard
Battambang	9	82	9.1	64	7.1	0.8
Bantey Meanchey	4	34	8.5	21	5.2	0.6
Kg. Chhnang	6	>51	>8.5	128	21.3	2.5
Pursat	4	42	10.5	204	51	1.2

Note: Weapons range from rifles to machine guns and an occasional rocket launcher. Weapons of sub-lessees are not counted.
Source: Extract from Fishing Lot Inventory conducted by the Management Component of the Cambodian Freshwater Capture Fisheries of the MRC Fisheries Sector Programme, 2000.

In the common property areas outside the fishing lots, stakeholders negotiate local control over water surfaces and fishing grounds, and establish a set of informal rules that are not necessarily consistent[20]. Even within concession areas, informal rules between various stakeholders are the norm rather than the exception. These stakeholders comprise villagers, fisheries inspectors, local civil authorities, military, militia, police and fish traders. This essentially pre-supposes that all those who acquire custodianship prerogatives, whether on an administrative basis (civilian leaders, inspectors…) or as a concessionaire, transform these into tradable exclusive rights. There have been practices where lot owners do not themselves engage in production of fish, but use their license to determine access for other users at a cost and make a living. In this sense, the auction fee paid is simply the cost of acquiring the ability to impose costs on others, transforming what should basically have been an administrative relation between commercial and subsistence users into a 'bargained' one, albeit not between equals. The same holds true for the harvesting of resin, used for sealing boats, and other products of Cambodian forests (NTFPs). The government established a number of permit, licensing and fee requirements to transport and export these products. Resin production and trade involves tappers, small traders, wholesalers, exporters, and domestic retailers[21]. The total production of resin in Cambodia is estimated at 20,000 T. A study concludes that '*technically, almost all resin trade and export is conducted on an illegal basis because of the difficulties of compliance. Consequently, the system generates almost no official revenue. What the system does provide is a basis from which local authorities and officials can justify the collection of informal fees*'[22]. Given that most of Cambodia's forests are in concession or pro-

[18] This information and figure 4 are from: Peter Degen, Frank Van Acker, Taken for granted, Conflicts over Cambodia's freshwater fish resources, 8th IASCP Conference,Bloomington, Indiana 2000.
[19] A Self-Review of Community Fisheries Development in ex-fishing lots #13, #14 and #15 Kompong Chhnang Province, March 2002**:** Crafting monitoring tools for use by those who need them**,** Degen, P., Yin Dara, Lieng Saroeun, Chap Piseth.
[20] For this reason, the term "*open access"* areas is not really applicable, as it indicates no management rules at all.
[21] Tola, P. and McKenney, B. Forest product trade in Cambodia: a case study of resin, Cambodia Development Review, April-June 2003, Volume 7, issue 2, CDRI, Phnom Penh.
[22] Ibidem, p.3.

tected areas in which, by the way, some 600,000 people live, the tapping of resin also implies informal arrangements with the concessionaires and park authorities.
So because of this complexity of determining the legitimate rights to harvest resources, especially fisheries where the stock is mobile, and particularly in prime locations, a large margin for conflict and overexploitation is unavoidable. This is exacerbated, first, by the lack of government enforcement of the formal regulations, and their subsequent abuse by the very holders of the access rights. For example, a survey of the incidence of illegal fishing practices by lot owners in *Kompong Chhnang* in 1999, indicated that of the 8 fishing lots in the province, one engaged in dry-pumping certain areas to catch fish, two of them used electrocution, four used so-called 'sweeping' (trawling a net over the bottom), followed by the use of so-called 'brush parks' in six of the lots. All of these methods are strictly prohibited by Article 17 of the Fishery Law[23].

The second exacerbating factor is that a more complex decision environment renders coordination increasingly difficult, because it raises the transaction costs involved in coordinating users' strategies to reach an outcome that is collectively beneficial. It would be a fallacy to fall in the trap of a romanticized view of a harmonious and homogeneous, non-stratified community, and one does well to appreciate that all communities are imagined communities to a certain extent[24]. The recognition of diversity and interdependence implies the recognition of different management preferences. An important feature of the floodplain fisheries is that rights of access to fish at a particular location are not constant. Various resource user groups are not socially homogenous but have different characteristics. Some have established customs of NRM, for instance a number of ethnic minorities, others merely exist seasonally around specific needs. The rice-farmers in the floodplains, for instance, won't brush up their fishing gear unless they have seen the first ripples of floodwater lap around the wooden piles of their elevated houses.

In addition, new and more diverse users join the fray to gain access to the resource base and exploit its rents, using increasingly heterogeneous assets and discounting the future at different rates. Such increased diversity of resource-users is visible for example in the dissociation, through the appearance of middlemen (rentier-capitalists), between decision-making affecting the resource and customary use of it. This evolution signifies an increasing asymmetry of assets and technology invested in the production, as well as a decreased awareness of the costs involved. New entrants cannot be understood to have the functional knowledge evolved over time by long-established users of the resource (a learned degree of scarcity), nor can it be assumed that they care as much about it as those that depend on the resource for their survival. The rate at which new entrants will discount the future will certainly be higher than that of traditional users, and may even approach infinity[25]. New externalities are created in the form of lost opportunities occasioned by incompatible use. These externalities may relate to problems of allocation of the subtractable flow (rents), as well as to problems of maintaining the productive capabilities of the stock. For example, by pumping dry a sea-

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[23] Vuthy, L. et al. The Management of the Freshwater Capture Fisheries in Cambodia (Mekong River Commission Freshwater Capture Project), Legal Principle and Field Implementation, December 1999; a brushpark is made of brush thrown into the water close to the riverbank. After two or three months the brushwood is surrounded by a net, the brush taken out and the fish -that has been attracted into the brush- harvested.
[24] Agrawal (1999).
[25] The least that can be said about it is that new entrants that seek to realize the market value of the resource will not set the discount rate below the market interest rate they could receive for their invested capital $V = \sum_{p=1}^{t} \frac{N_p}{(1+i)^p}$; the net present value of the resource rent calculated at the market interest rate i over the period p equal to the depreciation period of invested technology t could therefore be considered a bench-mark of minimal efficiency.

sonal pond that is part of a fishing lot, the operator shifts all the costs involved to the surrounding community and to a certain extent to future generations: no fish remains for them to catch, no water for irrigation or other purposes. These costs are not reflected in the auction fee or in the price of fish in the market. On the other hand, what should be social benefits that accrue to community members and future generations are privatized. When farmers abstain from cutting flood forest in the interest of future fish catches, the gains will be reflected as private benefits of a commercial operator.

Externalities increase, and the more inter-linked nature of the changes increases the chance that the structure of the situation faced by the appropriators transforms from a common property situation into a common property dilemma, ruined by conflict.

4. Conflict over the commons

4.1 The role of markets

The Cambodian state handed over the management of crucial natural resource sectors to the private sector, including the privatization of enforcement with armed (para)military types patrolling forests and floodplains. In addition, officials enjoy significant discretion in setting government practice; illegal logging and fishing activities are hard to control, for example, when these are overseen by military personnel. Finally, government proved unable to coerce local resource users into accepting these limited access arrangements in the face of their intrinsic importance for everyday livelihood. Any management regime based on such recipe is bound to end in a spectacular failure. By 2002, the situation on the ground had so gotten out of hand that government, donors, and civil society alike talked in terms of '*anarchy*' and '*total system failure*'[26].

The pressures on the system affect the 'stock' as well as 'rent' dimensions of common-pool resources. Especially changes in the relative prices of factors and products can affect and degrade the 'stock'. Affecting the stock of flood forest for example, are the changes in the relative prices of factors, particularly land. New roads, new or upgraded irrigation systems and other advantages that create a greater proximity to markets or greater market value, will be capitalized in the local cost of land. The rising value of land may create the necessary incentive to drain floodplains or cut primary forests, and convert them into permanent farmland. The change of its supply in the short term creates quasi-rents. Changes in the relative prices of products, for example fish vs. rice, may also induce land use conversion and the erosion of common pool resources. As the demand for Cambodian rice increases both in terms of national consumption and export in the context of ASEAN, the indifference to growing paddy and the preference for spending time on fish production carries a cost[27]. In terms of the 'resource flow' of a particular CPR, so far the paper has concentrated on the incompatible use between similar users, e.g. fishermen (be they subsistence or commercial). Just as important however is the incompatible use of the resource between different sets of users ('sectors'). Alternative preferences for gathering floating vegetables (morning glory) and catching fish are perfectly compatible and do

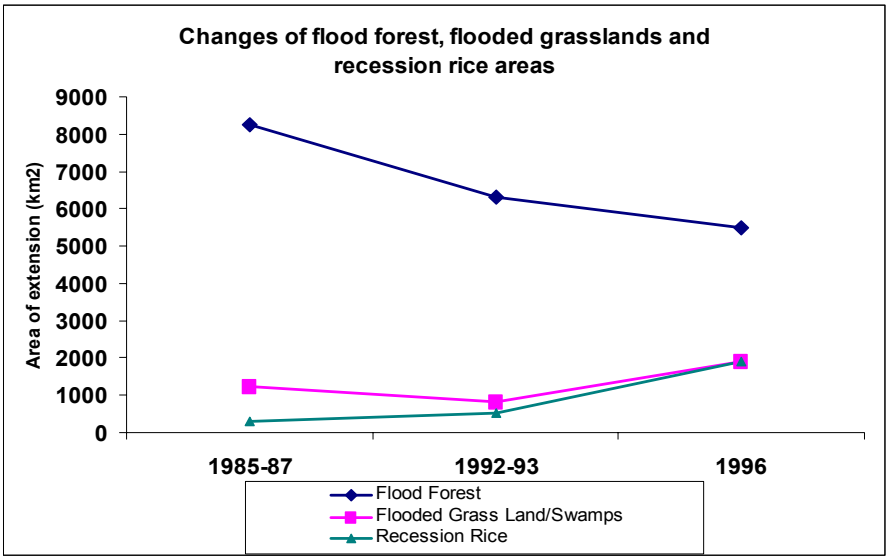
[26] 'Declaration On Management and Elimination of Forest Anarchy' by Prime Minister Hun Sen, 25/01/1999 (ADD Fisheries).
[27] This opportunity cost is equal to the forfeited net present value of paddy production minus the net present value of fish production over the same time. Note that this effect becomes more pronounced as the market value of fish catches, increasingly composed of smaller fish as noted earlier, itself decreases.

not affect the 'stock'. Things are different however when contrasting irrigation and fisheries (blocking fingerlings for example), or even more clearly, the harvesting of NTFP such as resin vs. timber in Cambodia's forests. For instance an irrigation group may be interested in damming and diverting oncoming floodwaters into their fields, whereas the fisheries sector needs the floodwaters to be unimpeded to bring the fingerlings that spawned elsewhere and will mature over 1 or 2 seasons in the lake proper.

Looking at rival claims to the alternative use of resources more in general in Cambodia, the thorniest issue is indeed the utilization of land and water for farming and irrigation purposes. The potential for the contradictory allocation of resources among alternative uses is clearly highlighted by the crowded rice and fisheries calendar on a limited space of about 500,000 ha, where about 5 million people live. Cambodia has a total cultivable land base of ca. 2.3 million ha, of which – depending on the extent of floods – about 1.8 million ha is permanent agricultural land and about 0.5 million ha is floodplain. According to the agricultural calendar, floods are at their highest in November, and the peak of the fishing season is from December to April. All in all there are three possible cultivating seasons for rainfed rice: one just before the floods (June-September), one during the floods when special varieties are used (floating rice) (September-January), and one that follows the receding floodwaters (February-May). In these cases, collecting water in reservoirs as it floods in and storing it while the floodwaters recede is anathema to the interests of fisheries. Not surprisingly, fishing lot owners have been known to break irrigation dams in concession areas, claiming that the fish in it are rightfully 'theirs'. Note that the preference for alternative resource flows, in as far as these are incompatible, will also affect the 'resource stock'.

The increasing pressure for the wetlands surrounding the Tonle Sap to be brought into culture demonstrates the effect of land use conversion, whether supply- or demand driven (changes in the relative prices of factors and products respectively). The changes in flood forest and recession rice areas over a 10-year period are reflected in figure 4[28].

Figure 4 : Changes of flood forest, flooded grasslands and recession rice areas



Sources: GIS layers of land cover maps of Mekong River Commission were used for analysis

[28] From Degen, P. and Van Acker, F., op.cit., 2000.

The increasing influence of the market is not limited to factor and product prices, reflecting themselves changing preferences. Increasingly, user groups will grow more heterogeneous, with a number of operators and/or new entrants managing their undertakings using a profit-making logic. This is different in that it typically maximizes the returns on capital, rather than the returns on labour as in the subsistence sector. The market dictates that all investments produce a return that is maximized at the margin: production continues as long as the cost of the last unit produced is lower than the benefit derived from that unit. According to this principle, the market evaluation of the value of natural resources would thereby tend to stabilize the resource at a level at which the net present value (expected benefits minus expected costs) of the stream of resource rents through time is maximized[29]. Yet, as stated earlier, due to the specific nature of a common pool resource the costs that are taken into account in private production decisions typically tend to under-estimate the costs imposed upon society. The rates of time preference that guide the rate of resource harvesting may put emphasis on the immediate future. The higher the competition, the more uncertain the future availability of the resource, the higher the preference for present as opposed to future harvest as expressed in a rising discount factor. Because of this, the harvest rate risks to be above the net natural growth rate, and the asset depleted in the absence of effective coordination. In extreme cases, the discount factor may be set at infinity, meaning that beyond its immediate utility, the future value of the resource is set at zero by those looking to dissipate its rents.

4.2 'Anarchy' in fisheries and forestry

Exactly such a scenario has been unfolding in the commercial forestry sector in Cambodia. The Cambodia Forest Concession review of 2000 found that no forest concession in Cambodia had been managed sustainably, with harvesting far outpacing the rates expected under the 25-to 30-year Forest Timber Licenses. A report from the NGO 'Global Witness', in its capacity as the independent monitor selected to work with the Government's 'Forest Crime Monitoring and Reporting Unit', pointed out that the state earned $92 million from the forestry sector between 1994 and 2000. Yet massive floods in 2000, blamed by the UN on deforestation, cost the country an estimated $156 million. The Cambodian Government announced the suspension of all logging operations from January 2002. Clear evidence of this moratorium being ignored forced the Government to act further by canceling concessions, seizing equipment and illegally harvested logs, and closing illegal sawmills. The on-going reform of forest concession management required the existing forest concessionaires to submit sustainable forest management plans for Government review by the end of September 2001. Nearly all the concessionaires failed to submit their plans by the deadline and the Government extended the logging ban. Despite the moratorium, the cutting of resin trees, on which the livelihoods of the forest dependant poor and indigenous people depend, continues. There is also evidence that concessionaires circumvent the moratorium by establishing agro-industrial plantations in forest areas, necessitating the clear-felling of trees. In Tum Ring commune in Kampong Thom province, a logging company cut more than 10,000 ha of forest in this way AFTER the declaration of the logging ban. It is clear from the table below, based on the results of the ADB Forest Concession Review, that none of the existing concessionaires fit the criteria as stipulated in the Sub-Decree on Forest Concession Management, notably: a good compliance record, with an absence of serious technical violations in all jurisdictions in which it has been engaged in

[29] Munro, G.R. and Scott A.D. (1985), The Economics of Fisheries Management, in Kneese, A.V. and Sweeney J.L. (Eds.), Handbook of Natural Resource and Energy Economics, Vol II, North Holland, Amsterdam.

forestry operations, and adequate financial and professional staff resources to carry out effective forest operations.

Figure 5: Contractual breaches by the concession companies. Source: ADB Concession Review 2000.

	Failure to invest as contract outlines	Failure to make financial deposits	No minimum annual royalty paid	No submission of financial statement	Non-compliance with EIA rules	Unacceptable forest management plan	(Extensive) illegal logging	Breach of Investment Agreement	No submission of EIA report	Inadequate technical training of staff	Operations outside concession	Illegal processing of unmarked trees	Logging without permit	Logging in wildlife sanctuary
Casotim	◆		◆		◆	◆	◆	◆	◆	◆				
Cherndar Plywood	◆		◆		◆					◆		◆		
Colexim	◆		◆[c]		◆	◆		◆		◆				◆
Everbright	◆	◆	◆[b]	◆	◆	◆		◆		◆				
GAT	◆	◆	◆[d]	◆	◆	◆		◆		◆				
Hero Taiwan	◆	◆[a]	◆[e]	◆	◆	◆	◆	◆		◆	◆			
Kingwood Industry	◆	◆[a]	◆[f]	◆[g]	◆	◆		◆	◆	◆	◆			
Mieng Ly Heng	◆[a]	◆	◆	◆	◆	◆		◆		◆			◆	
Pheapimex	◆	◆[a]	◆[b]	◆	◆	◆	◆	◆	◆	◆				
Sam Rong	◆	◆	◆[b]	◆		◆		◆	◆	◆				
Silveroad		◆	◆	◆[h]		◆[i]	◆							
Samling				◆	◆	◆	◆	◆						
Super Wood	◆	◆	◆	◆	◆	◆	◆[j]	◆	◆	◆				◆
Timas	◆	◆	◆	◆		◆	◆[j]	◆	◆	◆				
TPP	◆	◆	◆	◆	◆	◆[k]			◆	◆				
Voot Tee Peanich	◆	◆	◆	◆	◆	◆		◆	◆	◆				
You Ry Saco	◆	◆	◆	◆		◆		◆	◆	◆				

a No proof supplied to support their claims of payment, b No payment in the 2nd or 3rd years, [c] No payment in 1996 or 1997, [d] No payment before 31st December 1999, e No payment in the 2nd year, f No payment in 2nd, 3rd or 4th years, g No payment last 4 years, h No payment in last 2 years, i Concessionaire permits Thai companies logging in their concession, j Logging carried out by unknown (illegal and organised) parties, k No existing plan at all.

The situation in the fisheries sector has not been much better. As stated, rampant abuse by the private concessionaires in terms of allowable gear use and location, and a lack of government enforcement of potentially effective regulations, led to widespread conflict. Following the proclamation, fisheries officers were recalled from the field to the capital Phnom Penh, and the fishing season of 2001 turned out to be the most intensive in the history of the Tonle Sap. Actually, the situation resembled a de facto open access regime; lot owners who were about to give up their leases engaged in a total harvest mentality and there was widespread illegal fishing from villagers[30].

[30] Pettitt, B. and Sim, B. Conflict, Governance and Livelihoods: the challenge of community fisheries on the Tonle Sap, Cambodia, Oxfam America, Phnom Penh, 2002; FAO, Community Fisheries Development, Siem Reap, Phnom Penh, 2002.

The following table gives a summary of the various pressures – within and between sectors (agriculture and fisheries) on the resource base and product flow of the Common Pool Resources discussed so far.

Figure 6: Pressures and Conflicts re. Common-Pool Natural Resources in Cambodia

	Intra-sector	Extra-sector
Resource base (stock)	• **Authority rules violation**: Assignment: operations in excluded areas and seasons e.g. logging in protected areas Technology: use of banned technology, e.g. 'grenade fishing' Appropriation: harvesting of excluded species • **Ineffective enforcement**	• **Conversion** of the resource base • **Externalities** affecting resource base: e.g. siltage of lake through dam building, increased use of pesticides • **Gaps and overlaps in enforcement** re. agency and functions, e.g. Department of Forestry vs. Ministry of Environment
Product flow (rents)	• **Boundary rule violation** (poaching) • **Authority rule violations** (assignment, technology), e.g. fishing in closed season, excessively small mesh size of nets, dry-pumping • **Ineffective enforcement**	• **Competing uses** of resource base, e.g.: storage and diversion of water (irrigation) • **Gaps and overlaps in enforcement** re. agency and functions

4.3 The government response

Undeniably, Cambodia's 'commons' are multiple-user resources. The perceptions of a downward spiral of Natural Resources degradation, of the inability of users to organize themselves adequately in order to reverse degradation, and of the limited effectiveness so far of the state in relation to NRM, have prompted changes in public policy towards more local and more integrated management of NR. Hence not quite out of the blue, the Royal Government of Cambodia (RGC) identified natural resource management, prioritizing the protection of aquatic resources and fisheries besides land issues and improved forestry management, as prerequisite of broader governance reforms. This implies the re-negotiation of the institutional framework within which collective resource use takes place. Given that issues of access to and control over resources signal arenas of competition and potential conflict, with a redistribution of stakes that are quite high given the economic value of the forestry concessions and fishing lots, the actions in this field will also act as indicator for wider government commitment to governance reforms[31].

In practice, reforms involve the recognition by the state of the rights of communities to manage and use their natural resources, backed up by a legal framework that is to operationalize and bestow legitimacy upon this recognition. Some would argue that in doing so, the state is merely playing catch-up with reality on the ground, ratifying informal local arrangements, hence offloading legal responsibilities which it has been un-

[31] Reference to SEDP II, GAP.

able to fulfill properly. After all, if one considers a tenure regime in essence as a system of managing exclusion, the system will only be as good as the balance of (perceived) costs and benefits it bestows. Concretely, the RGC decided in 2001 to return 56% of the fishing lot area (a total of 495,000 ha) to open access, for management by fishing communities under the auspices of the Department of Fisheries (DOF). Following this decision, DOF established a Community Fisheries Development Office (CFDO) with the mission "*to facilitate the establishment of community fisheries throughout Cambodia and to support their functioning as management partners with the Department of Fisheries*". So far, more than 250 Community Fisheries organizations have been established. A review of the legal framework includes a new Framework Fisheries law and a Sub-decree on Community Fisheries. In the same vein, a Sub-decree on Community Forestry is being developed to enhance local community participation in forest management decision-making processes under the supervision of the Community Forestry Task Force, and more than 250 Community Forestry organizations sprung up since 2002. These Community Organisations however, are extremely ad hoc in nature and lack a clear reference point in the absence of enabling laws and policies related to community fisheries and forestry. These are some of the issues to be discussed next.

5. Collective action and property rights regimes

5.1 Framework conditions and capabilities

Public choice processes give an economic actor rights and allow creating costs for others by affecting another's access to, and use of, common-pool goods. But rules that determine who bears the cost of the freedom of others are not static; they are meant to provide a dynamic response to changes in the structure of a situation. Collective action among different user groups is required to agree on rights about access to, allocation of and control over the resource, and how to include those previously excluded from the settlement at various levels. When the public makes a different choice through political action, costs are reallocated. This signifies the re-distribution of *de jure (*and *de facto* rights) over natural resources, shifting externalities and creating cost where there was income or use before and vice versa. Elaborating and agreeing on these rules for CPR use, basically changing the structure of the situation, involves three levels of collective decision-making (Ostrom 1990): the constitutional level where the legal framework for cooperation is established, the organizational level where the collective choice rules - rules for interaction between management organizations and user groups - are determined, and the operational level which provides resource users with day-to-day rules controlling access to the resource and allocation of the resource flow. The collective choice rules give guidelines for formulating, changing and enforcing operational rules. These rules define who is eligible to participate in decisionmaking and how the future operational rules will be made (Ostrom 1990: 141-142).The operational rules directly affect the use of the resource: who can participate, what the participants may, must and must not do (permit, require, and forbid), and how they are rewarded and punished. Rules can be either formal or informal shared understandings. Some of the categories of operational rules were previously mentioned (cf. Figure 3): boundary and authority rules defining the resource system in terms of area and members, appropriation rules (who is getting what), input rules (in what way the users contribute), enforcement rules (monitoring and sanctioning), and conflict resolution rules or mechanisms.

In considering these levels, the arguments so far have indicated the need for understanding the policy contexts of various NRM measures, the alignment of interest groups that facilitate or impede management of the

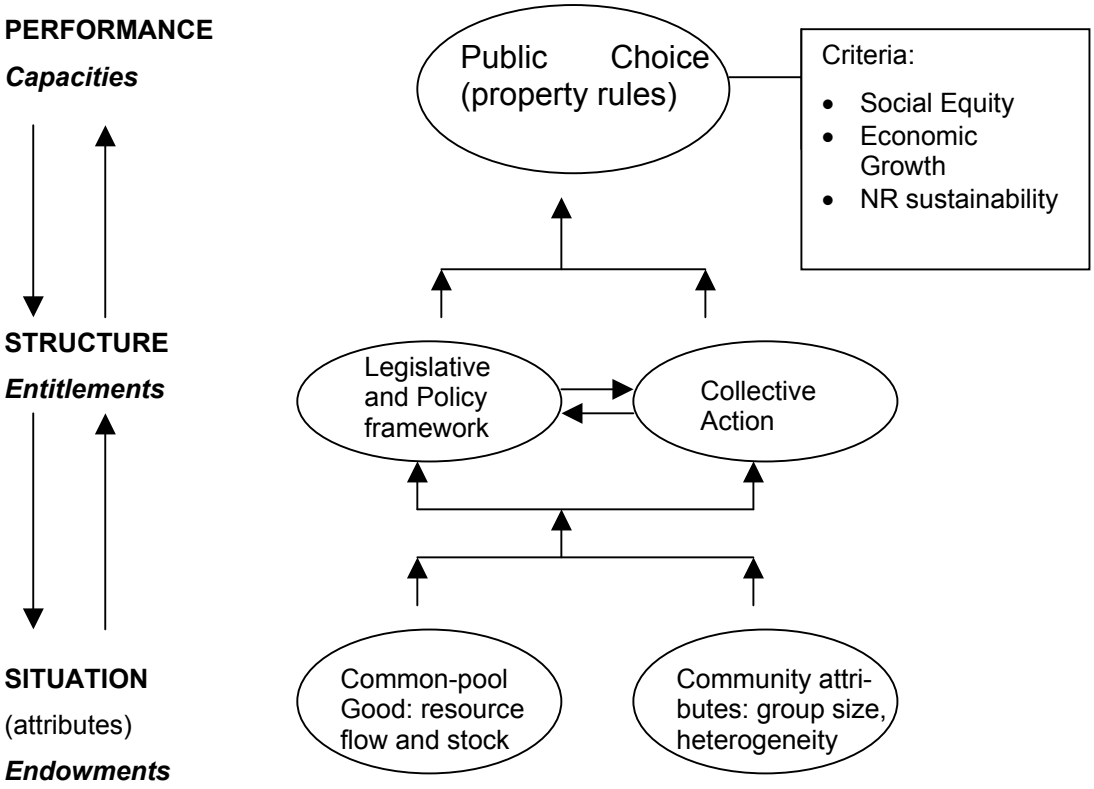
NR base, and the collective action rules of institutions governing NRM which would enable greater participation of the poor and more vulnerable. In this regard, one does well to bear in mind that the failure to organize collective action is a source of externalities, just as much as giving in to opposition waged by the existing rights holders who want to hold back any change to the existing rights distribution. Remember that those relying on CPRs for their livelihoods are generally the poorest and least powerful members of society.

Next, the paper will consider the changes in the structure of interdependence in fisheries and forestry, occasioned by the state-ordered transfer of entitlements from the commercial to the so-called subsistence sector. Basically, the reforms aim to establish an administrative rather than bargained relationship between (i) the users who will hold joint ownership of the resource base, vs. their representatives who will manage the common-pool assets at the intermediate level, (ii) the users and their representatives vs. the state. This will entail a look at the concept of 'performance' and then 'structure', the framework conditions that guide the development of the new setting for NRM related collective action. The inquiry will then reflect on the capacity for self-organization of communities so far, and what this tells us about possible performance in the future. Finally, there is the question whether the ongoing decentralization process, in essence the decentralization of the distribution of administrative rights, holds any promise in supporting the alternative system of rights the RGC envisages. To guide the narrative figure 7 graphically represents the various discussion points of this paper.

Before going there, an additional word is necessary about the difference between 'endowments', 'entitlements', and 'capabilities'. Endowments are what people initially hold, e.g. a community may be well endowed with forest resources. Entitlements are the legitimate effective command over alternative commodity bundles using the totality of rights and opportunities. Three issues can drive a wedge between endowments and effective entitlements. As mentioned earlier, there is the fact that resource claims are often contested and/or that sources of legitimacy may conflict. In addition, there is the possibility that actors may not be able to mobilize some endowments necessary to make use of others. The most familiar example would be the lack of financial capital or know-how to make the necessary investments to exploit a resource, but it should be clear that lack of access to bureaucrats to obtain necessary permits (social capital) may be just as much of a non-starter. Capabilities, finally, are what people can do or be with their entitlements. So, whereas endowments would be the variables that describe a situation, capabilities are what finally gives content to 'performance'. These concepts are not static but dynamic in space and time. Driving the dynamics is the other concept of 'entitlements', at the level of 'structure', which maps out which different social actors see which components of variable and dynamic ecologies as resources and how they gain capabilities by acquiring legitimate, effective command over resources (access and control)[32]. As stated, the 'who', 'what', 'where', and 'how' are changeable variables in time and space. Opportunity sets can never be described in a static sense or in individual isolation. Just how relative these variables really are, may be illustrated by the story of Rockefeller who, after accidentally striking oil in Kansas in the late 1800s, had no idea what to do with the copious quantities of the stuff for several years.

[32] Leach, Mearns and Scoones (1999).

Figure 7 : Creation of a new choice set: the SSP diagram



5.2 'Performance' as a result of creating a new choice set

The SEDP II is the Government of Cambodia's leading policy document. While it talks about empowerment of the majority, the reality on the ground in fisheries and forestry has been likened more exactly to anarchy. What this means has already been discussed. At this juncture rather, before looking into the issues to do with changing the 'structure' of the situation related to common-pool goods, the aspects of 'performance' and its explanation in policy terms needs to be examined a tad closer. What has been proposed on 'performance' so far has been rather general: the behavior and actions of people independently and in the aggregate result in 'performance' in terms of various goods and services (utility) and finally in the quality of human life (welfare). In Cambodia, with an eye on the 'mayhem' in forestry and fisheries besides other concerns, government has captured the dimensions of that improved welfare in its Plan, the SEDP II. In this, the Government has recognized the strong link between sustainable natural resource management and poverty alleviation, consistent with the constitution[33]. The three development objectives of SEDP II, referred to as the "Three Pillars", are economic growth that is broad enough to include sectors where the poor derive a livelihood, social and cultural development, and sustainable use of natural resources and sound environmental management. The Three Pillars together with the central goal of poverty reduction and the foundation of wide-ranging government reforms is in effect the framework of sustainable development in Cambodia. The framework affirms that poverty is the overall systemic effect or symptom of unsustainable development, and that

[33] The Cambodian Constitution states in article 59 that: "the state shall protect the environment and balance of abundant natural resources and establish a precise plan of management of land, water, air, wind, geology, eco-logical system, mines, energy, petrol and gas, rock and sand, gems, forests and forestry products, wildlife, fish and aquatic resources".

constraints in governance are systemic manifestations or causes of unsustainable development and poverty. The Government's strategic motto is a concise summary of the above sustainable development framework: "*Poverty reduction through high economic growth over the long term by ensuring environmental sustainability and social equity*." The objectives the RGC sets forth through the SEDP II framework therefore are: a reduction in the incidence of poverty, creating the conditions for long term economic growth, protecting the overall natural resource stock, and equitable access to goods and services.

Put differently, the government wants to shift externalities related to livelihood aspects of forestry and inland fisheries through political action. These externalities relate to distributive aspects (access to and allocation of resource flow), as well as maintenance of the resource base. Presumably, the desired performance will bring about a difference measurable by social and biophysical data, in order to discern the effectiveness of collective action against resource and socio-economic conditions. Figure 7 gives an overview in terms of 'performance' (the long-term and immediate objectives) of the main legislation and actions as they are being wheeled out to backstop the move towards community-based NRM. Note that these performance targets do not single out the government as the sole 'duty-bearer'. While it is undeniably the state that ordered the transfer of entitlements from the commercial to the subsistence sector through legislative and policy initiatives, the targets address and implicate all three levels of collective decision-making mentioned earlier: the legislative level, the organizational level, and the operational level. In addition, one has to be mindful of the dynamics involved. The state may order but it does not exist in a void. Various stakeholders are known to have cla-mored vigorously for a change of legislation and policies. Policies, in particular, are too often seen as exogenously determined, without recognizing the effect of lobbying efforts by stakeholders themselves. The table is a summarized version of a matrix that also includes 'actionables', and which is attached as annex 1. There, at the level of activities it is clear that also the local communities and stakeholders (multi-users) are addressed.

Figure 8: Sustainable NR management in place

	Long-term Objectives	Immediate Objectives
FORESTRY	Sustainable forest management practices are instituted	• Forest concession management rationalized • Movement of logs and payments is transparent
	Effective and independent forest crime reporting programme active	• Effective verification system • FCMU is independent
	Legal frameworks for the forestry sector are in place for the implementation of sustainable forest management.	• National Forest Policy developed • new Forest Law operational • Community Forestry Sub-decree enacted • Permanent Forest Estate stocktaking done[34]
FISHERIES	Successful and sustainable implementation of PM Order of 2000	• Responsible and productive community management of former concession areas in place • Provincial community fisheries coordination committees established • Transparency in commercial fishing lot operation established
	Legal frameworks for the fisheries sector are in place for the implementation of sustainable fishery management.	• New Fisheries Law enacted • Community Fisheries Sub-decree enacted

5.3 'Performance': some side comments

Before studying the various elements in the table under the heading of 'structure', a small divergence is de-rigueur. Apparent in the table is the optimism and underestimation of complexities usually associated with the process of development interventions. It is assumed that political manipulation of the structure of the situation, given the existing attributes of good and community, will guarantee the desired outcome (performance): if effective institutions for NRM are in place, then these will alter the cost-benefit calculus. Depending on the nature of the management rules, patterns of harvesting should then change in ways that will be mea-sured by biophysical data. However, for collective action to impact on poverty alleviation through better distribution of the resource flow and better management of the resource stock, a number of 'silent' assumptions need to be made explicit: (i) it is possible to organize collective action to produce common-pool resource flows more equitably and to produce a public good (maintenance of the resource base), (ii) all stake-

[34] Cambodia's permanent forest estates are not clearly delineated. There are instances where local communities and DFW sometimes make competing claims to certain areas. In addition, the current deforestation and the conversion of so-called irreversibly degraded areas for conversion need to be identified, in accordance with a publicly available land use plan. With a delineated permanent forest estate, Cambodia would be able to assess and rationalize its forest management program and consider various management options, which may include local communities and the private sector.

holders understand and share a concept of environmental sustainability, (iii) it is the collective action in question which will cause the more equitable access as well as contributing to the conceptually shared objective of environmental sustainability.

The first point on collective action will be treated extensively further on. The confidence exhibited in the second and third postulation merits an aside here on the dynamic features of institutions and resources (emergence and evolution). To begin with, people concerned generally have little knowledge of the breadth of performance consequences of alternative natural resource management rules, and it may not be easy to agree to a shared concept of environmental sustainability. Users of natural resources are interacting with complex, adapting ecological systems and are themselves a part of human, complex, adaptive systems; both ecological and human systems exist at multiple scales over time. This assertion is borne out by Platteau and Balland. On the basis of an extensive review of case studies, they challenge the assertion that traditional users possess a good understanding of the status of the resource stock, and/or have developed a shared understanding of sustainability and the type of actions that are needed[35].

In addition and for the same reason, causal relationships between management rules and a change in resource conditions have to be interpreted with extreme caution. First, the transformations involved in mapping actions into outcomes are stochastic – as opposed to determinate - in nature. The parameters that describe an eco-system's internal organization and overall conditions under which the different species dynamics contained within it operate, are not independently controllable entities. There is the possibility of a system-wide response that is much broader than the effect, caused by cumulative effects of many discrete production and consumption decisions at different times and different places, even in different countries, on the specific resource or species. In turn, it is impossible to foresee all of the feedback-effects of the system-wide response. The more it is difficult to register and identify the stock levels of a particular resource, the more chance there is for system-wide effects to come into play. For instance, there are reports of widespread use of organochlorine insecticides such as DDT. If the use of these chemicals is as widespread as locally reported, their accumulation in aquatic systems and concentration in large organisms, many of which are rare or endangered, represents an ominous but incalculable threat currently facing Cambodia's wetlands.

Further, a common assertion in the literature is that spontaneous cooperation will emerge as long as the benefits of coordination will exceed the costs in a Pareto-optimal sense, because coordination raises benefits, lowers costs (especially transaction costs), or both. Yet the arguments advanced above cast a shadow over such assertions. Can the value of costs and benefits related to NRM be known ex-ante, especially as human and ecological systems interact in ways that are not always predictable, above all for resources of which the stock levels are uncertain? Again, the central tenet must be that opportunity sets – entitlements - can never be described in a static sense or in individual isolation. The assertion must therefore be understood, not so much in a conservationist as a redistributive outlook, to refer more to the opportunity to create costs for others and/or to create benefits through use or exchange. Collective members will have stronger incentives to organize if they perceive that collective action can effectively reduce the costs of transactions. The ability to reduce the costs of organizing a collective has been credited to a variety of community attributes: homogeneity of values and beliefs, homogeneity of access to the resource (mutual vulnerability), mul-

[35] Platteau and Baland, op.cit.. (1996).

tiplexity of user relationships, 'nesting' in multiple layers with outside organizations (both vertically and horizontally), and stability of expectations.

Finally and perhaps most importantly, the choice among institutions is not only one of minimizing transaction costs, or even of a cost-benefit calculus, if the total performance of who counts is thereby different.

5.4 Structure: Whose entitlements count? Changing the pay-off structure

The government intends to transfer entitlements between the various stakeholders or users of the commons. It realizes these intentions through the details of the framework conditions it has created and shaped. What notions exactly do the framework conditions put across? In addition, what potential is there in Cambodia for collective action, the inherent vehicle to deliver the desired changes? To a certain extent, insights will depend on revisiting the 'community' attributes, a largely unexplored area so far in this paper.

5.4.1 The framework conditions

Summarized, the idea in fisheries has been to abolish a large number of concession areas, and hand these over to community fisheries; in other words, constraining the choices of the commercial sector while enhancing those of the subsistence sector. In forestry as in fisheries, there has been a move towards the development of enabling legislation especially by way of the community fisheries and forestry sub-decrees. In forestry unlike in fisheries, there is no unambiguous move as yet to hand over large tracts of forest areas for community management. The stress in forestry is much more on rationalizing forest concession management and maintaining the independent monitoring body. Also Non-Timber Forest Production (NTFP), under sustainable forestry practices (annex 1), is conspicuous by its absence. A more detailed reading of the conditions follows, first for forestry and then for fisheries, to finish with a number of cross-cutting issues.

Forestry

Several decisions and actions have been implemented by the RGC with regards to the forest resources. The legislative and policy framework have been strengthened considerably with the passage of the long-awaited new forestry law. The key reform issues of concern include forest concession management, the community forest sub-decree review, and determining the national permanent forest estate. Substantial work has been undertaken in forest concession management: subdecrees on management of forest concessions, formulation of a code of conduct for forest concessionaires, suspension of forest concessions awaiting a management plan, and preparation of community forest management. Issues of concern are two.

First is the absolute stress on the commercial sector and the question whether the role of local communities as agents for the effective protection and preservation of natural resources must not figure much more unambiguously. Instead of continuing to fund efforts to reform the concession system, an alternative strategy would be more stress on NTFP. This entails a revision of fees and permits on NTFP products within the context of the existing law and in consultation with local users. To the extent that the current concession system continues, the development of sustainable management plans, including 'Environmental (and Social) Impact Assessments' (ESIAs), has to be made transparent and stakeholder participation needs to increase; e.g. the "disclosure" of ESIAs is not sufficient because it is not a call for participation in elaboration and/or reviewing.

Second, are concerns regarding the contents of the new Forestry Law. It includes reintroduction of an annual coupe system which circumvents systematic forest management planning, short 15 year terms for community forestry agreements very unlike the 30-year terms for commercial concessions, excessive management requirements and product licenses and fees for community forests, inadequate protection of rights to carry out traditional swidden agriculture[36], and the need for the Minister of Agriculture to authorize any area to be designated as community forest. It is also not clear whether there will be any transfer of use rights with commercial value (the lucrative aspects of the sector) or whether the provisions will only cover degraded forests. There is also no mention of a ban on agricultural concessions in forest areas, which means that the forest law can be sidestepped.

Fisheries

The Department of Fisheries is struggling to keep up with the menu of regulatory reforms in a transparent and consultative way, esp. in the absence of a Fisheries Management Plan, which would provide a policy and technical framework for developing commercial and community fisheries management plans, incorporating principles for ecosystem management. At present, drafts of a new Fisheries Law and a "Sub-decree on Community Fisheries Management" are under review. Both have been subject to stakeholder consultations, though there are serious shortcomings and weaknesses in their present form and, as in forestry, there is some unease that the on-going review may result in changes to the sub-decree that would undermine the contributions made by stakeholders during the consultation process. Current challenges here are the effective establishment and strengthening of community fisheries, i.e. improving access of local communities to fishery resources; this entails building the capacity of the Department of Fisheries to support community fisheries. Of the main stakeholder from among the public sector institutions, the DOF, especially at provincial and district level, lacks the logistical means and human capacity needed to meet the challenges of sustainable resource management. There are also concerns on the creation and expansion of new categories, the so-called 'research lots', and the ambiguity of the criteria that determine which areas will be so-called fisheries research lots[37].

Cross-cutting issues

Cross-cutting inconsistencies and shortcomings of the legal framework are four. First, in terms of participation, there is a need to develop a wider concept of participation that includes not only the direct management by communities of their resource base, but also involvement in consultations on all issues that affect them, e.g. proposed legislation and proposed management plans for commercial concessions. This requires published notification on procedures and timeframes for public consultation.

Second concerns the means of transferring powers: how secure are rights granted? When powers are transferred through discretionary executive-branch decision, local users may exploit these new rights with urgency if they believe the transfer of rights is not secure. In Cambodia, the fisheries reform process was not

[36] It is worthwhile in this regard to consider whether communal land certificates, thus far only valid for ethnic communities in the North-Eastern provinces of Cambodia, can be a valuable option for existing community forest areas in other parts of Cambodia.

[37] A process seems to be in the offing in which most if not all of the remaining commercial fishing lots will be turned into research fishing lots, the management of which is solely in the hands of the DoF (personal communication from DoF personnel). Like the possibility of creating agro-industrial plantations in forestry areas, this provision would enable sidestepping by interested parties of the major legal provisions under development.

the result of policy development, but driven by prime ministerial announcement to abolish a range of fishing lots and start community fisheries. Neither community fishery nor community forestry efforts so far are supported by a legal framework. Such insecurity on the transfer of powers affects the sustainability of reforms and the willingness of people to invest in the reforms.

Third is that the control over natural resources is vested in different departments, inhibiting cooperation at various levels (national, inter-provincial, provincial, inter-commune…) for policy formulation, implementation, and monitoring, which is a critical issue in NRM, given the interconnections between the use of water, land, and forests. For effective biodiversity conservation, policies must be consistent across the sectors which deal with resource management, yet the fragmentation makes it difficult to plan an integrated local strategy. The approach to natural resource management has to take account of the wider social, economic and political context of natural resource management. It also has to include concerns such as capacity building and empowerment, and advocacy for relevant policy change. Current strategies for decentralised resource management are falling far short of achieving such an integrated approach. As various legal instruments governing natural resource management are being or have been developed, it has become apparent for instance, that these instruments need to be made more consistent so that they do not cause conflict and impede efforts to manage Cambodia's natural resources. For example, the Government needs to ensure consistency in the course of drafting the Water Resources Management Law and the Fisheries Law, and their consistency with the existing National Environmental Management Law (passed 1997), the Land Law (passed 2001) and the Forestry Law (passed 2002). Effective mechanisms are needed to ensure that central ministries and line ministries reach a shared understanding of policy reforms and the resources needed for implementation.

Fourth, the processes of decentralization and deconcentration have moved at different speeds. The decentralization process, understood as the transfer of powers from a higher to a lower elected level of government, is to be carried out in conjunction with a deconcentration process, understood as the transfer of power from higher administrative levels to lower levels. As such the provincial and district territorial administrative levels remain accountable upward, while the elected Commune Councils as a second layer of government are to be accountable downward towards their constituency. The present confusion in institutions has led to an unwieldy mix of deconcentration and decentralization of government activities. Elected local government structures are already in place while the Organic Law on Deconcentration has not yet been drafted. Any tangible deconcentration progress so far has arisen mainly from within line ministries' own sector policy development.

5.5 Situation and community attributes; Collective action: to do or not to do?

5.5.1 An Assurance Game setting: the importance of being social

The government of Cambodia wants the users to manage their common-pool resources. This, at least, seems to be the message to clear up the murky waters of freshwater fisheries, with similar provisions being studied for forestry. Whereas the framework conditions in their current state of elaboration may still be far from a robust support for the desired performance, equally important is the capacity of Cambodian communities for self-organization. Even if the framework conditions were just right, they would clearly not be sufficient

to transform the relation between users. Vice versa, to cling to the tenet that people facing congestion or depletion of their CPRs will, almost by definition, do nothing to alleviate it, even if the framework conditions are not too supportive, would be peddling half truths[38]. Earlier on, the paper already stated that the focus of CPR studies is no longer on the tendency of that irredeemable *homo economicus* to overexploit the commons. Attention has shifted rather to interdependent human interaction involving issues of trust, leadership, organization, group identity, and homogeneity or heterogeneity of group members. How does co-ordination (collective organization) actually emerge in response to growing resource scarcity or, in game-theoretical terms, how can the initial trust required, be established to make co-operation possible in what resembles the setting of an infinitely repeated game?

From this perspective of repeated interactions and reciprocity, collective action to manage the commons is best described not in terms of the Prisoners' Dilemma but in the setting of the Assurance Game (AG). In this game each player prefers symmetric solutions, so that universal cooperation as well as universal defection is possible[39]. Accordingly there is no dominant strategy. Extension of the AG to multi-player games assumes that each player will only choose to cooperate if at least a critical mass of the other players is doing the same. In a situation where rule change needs to be engineered, catalysts can play an important role in getting cooperation started[40]. Furthermore the choice of action will depend on the mutual expectations and the degree of trust of the members of the group[41]. Predictability is a key notion in an assurance setting, in helping to determine the degree of mutual reliability with respect to actions involving the possibility of free-riding. As the complexity of the decision environment rises (more heterogeneity in terms of actors, technology, time horizons), the level of ambiguity of the rules in use increases, their applicable time-horizon decreases, as does the predictability of the behaviour of others. Given the resulting level of ambiguity and with it of moral hazard, the chances decrease that the common property dilemma can be resolved by coordination.

So, although insights of game theory and field studies allow for some optimism, such optimism should be guarded for various reasons, and not transform into blinkers that blot out the problems of moral hazard in co-ordination. According to Platteau and Baland, "*there is wide consensus on the fact that local management of CPR's may only work adequately under a limited range of conditions. There is also wide agreement on the nature of a large number of such conditions*"[42]. Before looking into some of these elements, especially the heterogeneity and size of groups, the concept of social capital needs to be slotted in when considering the need for critical mass to achieve 'universal' cooperation. What explains the readiness of individuals involved in a CPR dilemma to extend reciprocity to others before the others do so, especially as the speed of change is such that it precludes the gradual evolution of a behavioral response towards the changing structure of the situation? To coordinate their strategies in circumstances of increased ambiguity, people proceed by heuristics rather than by rational choice (which anyway is an appropriate assumption for a situation that has zero ambiguity only). The concept of social capital - the level of generalized trust and adherence to norms of re-

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[38] Wade, R. Village Republics: Economic Conditions for Collective Action in South India Cambridge: Cambridge University Press, 1988, p.208.
[39] Sen, A. K. (1967). Isolation, assurance and the social rate of discount. *Quarterly Journal of Economics* 81: 112-124.
[40] Ever since the heydays of liberation theology and the philosophy of Paulo Freire, the process of collective action itself - besides ensuring secure and sustainable livelihoods – is understood to promote empowerment, which we could characterize as effective participation in decision-making processes.
[41] Runge, C.F. (1984). 'Institutions and the Free Rider: The Assurance Problem in Collective Action', Journal of Politics, 46/1: 154-75.
[42] Op.cit.

ciprocity – is a central element of the heuristics. The capacity of individuals to adapt strategic behavior to change the structure of a collective situation is variable rather than constant, an insight that social scientists have increasingly come to underline on the basis of comparative case studies. Recent literature has posited the essential characteristic of social capital to be its positive rate of return (Putnam)[43]. Unlike other forms of capital, accumulating social capital benefits from increasing - rather than decreasing - rates of return. When different 'players' decide to trust each other, adopt reciprocity norms, and invest in a reputation for being trustworthy themselves, the rate of return in terms of lower transaction costs increases, even as the structure of interaction gains in complexity.

Does this imply that a high level of social capital will induce social interaction to produce an outcome that is spot-on, or at least near, the equilibrium value in situations where individual and collective rationality are not aligned (the case of CPRs)? In general, willingness to cooperate on the part of all participants does not guarantee that a Pareto-efficient solution will eventually be reached, especially as the group of participants with homogeneous interests and technology grows relatively smaller. The reasons are twofold: first the possibility of 'systemic' effects, second the assumption of bounded rationality that states that individuals learn and adjust rather than adopt fixed strategies such as utility maximization. In reference to systemic effects, situations become more complex as the number of appropriators and the asymmetry between them increases, but this complexity is emergent making it impossible to know ahead all the different outcomes and costs and benefits attached to them. Second, assuming even that complete understanding of all effects was possible, bounded rationality hinders the participants to a CPR situation from having a complete insight in the strategic structure of a situation and to rank their preferences infallibly. At different decision nodes, a set of inputs is combined and transformed by actions (a production function for example) into outcomes. What can be hoped for are reasonable outcomes that move in the direction of a Pareto-optimum: no one is worse off, while at least one person derives a higher utility from a rule change. So rather than determinate, the interaction of ecological and institutional variables is probabilistic, and finding a single dynamic equilibrium – if ever it exists – highly unlikely. The capacity of CPR users to willingly extend reciprocity to others, change the rules by which they play, and thereby change the structure of the situation they face in a robust manner, is therefore a necessary but –alas- insufficient condition for overcoming the multiple snags inherent in a CPR dilemma.

5.5.2 Increasing diversity and Cambodia's legacy of collective action

Catalysts of change: how effective are they?

The current transition is about a change in the collective definition of ownership of the common-pool resources. Can individuals in a heterogeneous group engage in transactions to change the institutional structure? In the 'SSP' conceptual framework, the knack of collective members to engage in so-called institutional transactions depends on their capacity for collective action. With regards to the various conditions that affect capacity, the most vexing question is that of the 'multiplexity' of social relations. A related inquiry is that of the ideal size of groups, an issue to which the paper returns later.

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[43] Putnam, Robert D., Making democracy work : civic traditions in modern Italy, Princeton University Press, 1993.

In game-theoretic terms, the use of CPR is not an isolated game; there are inter-linkages between what is being played there and what is being played in other sectors of the CPR users' social life. Trust, in other words, is produced in a wide variety of interactions and settings. In many cultures by the way, this is a self-evident notion, and the economy as a separate category of life is only apparent in modern market economies. Does it follow that a heterogeneous set of people is capable of producing the necessary collective action, basically by imposing on themselves rules of restraint in the midst of powerful market pressures? Taking time to reflect on this issue is not superfluous; the increasing integration into a market economy specifically brings about a more complex decision environment. This is a relevant issue in Cambodia's case which has been in the throngs of moving from a command economy to a market economy for more than a decade. Two things are worthwhile mentioning. First, the increasing mobility and growth of non-farm activities, such as the 130,000 jobs created in the booming garments industry in the last 5 years. The rural girls working there have been exposed to novel environments and ideas as well as to the effects of earning their own income, and constitute a new element in their community networks. More generally, the increased mobility and information are putting people in touch with the world outside their villages. Second, the involvement of the business community in Cambodia's countryside, with its weak institutions, has tended to be intensely exploitative, as illustrated by commercial logging and fisheries. To cite Coletta in a comparative study on social capital in Cambodia and Rwanda: "*Many stated that they thought market penetration had affected social capital in their societies more than had conflict in terms of the shift of focus from familial and intra-community ties to inter-community relations*"[44].

According to North's concept of 'path-dependence', adopted by Putnam, the capacity for collective action is determined by the accumulation of historical know-how[45]. When the 'bite' of history is not deep enough, collective action must be 'engineered' or caused to happen. So two things need to be looked at when concentrating on the issues of 'multiplexity' and 'catalyzing' reciprocity in the setting of an assurance game: what is the scope and strength of indigenous networks of collective action in which social capital would be embedded, and what has been the effect of external catalysts such as Civil Society Organisations (CSOs) and government-donors through the "SEILA' program.

Traditional networks and Civil Society Organisations

Cambodian civil society, apart from the traditional self-help groups centered on mutual assistance and observance of Buddhist ceremonies, is still very much the conglomerate of local and foreign CSOs operating in the country. Broad interest groups representing farmers for example, do not exist. Labour unions are there but very much in their infancy. Traditional groups organize around the *Wat* (temple), where various forms of self-help do exist – for instance labour-sharing (*provas dei*), irrigation, or other - but their influence is limited to village (or at best) commune level. Such informal networks are organized by kinship and affinity. Note that collective action in these cases is not so much the result of deliberate organization, as of the homogenization of interests (the aggregation of many similar localized actions). However, non-farm activities, particularly

[44] Colletta, N.J. and Cullen, M.J. The Nexus between Violent Conflict, Social Capital and Social Cohesion: Case Studies from Cambodia and Rwanda, The World Bank Social Development Department, Social Capital Working Paper Series #23, September 2000. The underlining is mine (FVA); note that the conflict which is mentioned involves episodes of genocide. There is therefore no scope to underestimate the breadth of Coletta's statement.

[45] North, D. (1990). Institutions Institutional Change and Economic Performance (Cambridge: Cambridge University Press).

small business and trade, are promoting new networks that go beyond the circle of relatives and friends. Networks formally based on the notion of mutual aid are yielding to new networks based on rigid reciprocity and the need to earn cash income, evident for example in the decrease of *provas dei*. As Coletta states, "*informal networks are not dissolving as a result of the ravages of violent conflict but are changing in composition in response to the power and permeating influence of external market forces*". This is not so difficult to understand when these traditional networks are seen as insurance mechanisms that pool risks between households via the organization of mutual assistance. When the majority of households (i) no longer share the same type of risks, what Mearns calls 'mutual vulnerability' (the mutual dependence on CPR for example relative to other sources of livelihood), and (ii) kinship is no longer the integrative focus of their networks, then these informal groups will erode[46].

So the question is becoming more fine-tuned: can collective action still be achieved through the spontaneous homogenization of interests, or – with the increasing heterogeneity – does it require deliberate organization? Note that these questions carry different weights; one is concerned with the formation of a user group from a set of individuals, the other with keeping intact existing user groups in the face of the market and incentives to defect. According to the (draft) community fisheries and forestry sub-decrees, specific organizations must be in place to function as coagulant for the required collective action. It does not give any indication, one way or the other, on how to get there. Fortunately, Cambodia has been a testing ground for 'community empowerment' through deliberate organization prompted by third parties, so there is something to be learned from their experiences. This is notably an area where CSOs have claimed centre-stage, departing from the basic philosophy that promoting the overall success of collective action means creating an environment where the wider community is empowered. In other words, uplifting development within an 'assurance game' perspective by producing a history of co-operative successes in a wide variety of interactions and settings, which makes people trustful of others' willingness to co-operate.

The origins of Cambodia's agglomeration of national and international CSOs are very diverse, either in direct cooperation with the former communist state, in catering to its opponents and refugees on the Thai border, or promoted under the singular system of a UN government. Initially, international CSO's adopted roles traditionally within the realm of government or multi-lateral and bilateral donors. In 1982, the USA initiated an international embargo along with other western countries, against development aid and trade with Vietnam-occupied Cambodia. The government was not recognized, and aid was largely limited to emergency relief work. UN development aid was prohibited. A core group of CSOs operating in Cambodia provided for large-scale infrastructure projects and technical assistance to government. By 1987 the core group spent about 10 million $ annually. On the other hand, CSO's were providing relief services to the 270,000 Cambodian refugees in the Thai border camps in the period from '79 to '94, and moved into Cambodia to support the repatriation and reintegration program of these refugees starting 1994. This group includes Cambodian organizations that were established in the Thai border camps. The UNTAC and post-UNTAC period saw a great deal of donor-driven development of civil society. The UNTAC deployed after the Paris Peace Agreements in 1991, ending the aid and trade embargo. The rehabilitation and reconstruction needs were colossal and donors, after almost 2 decades of absence, had no operational structures on the ground; accordingly large amounts of funds were channeled through CSOs. As a result donor needs became the impetus for the

[46] Mearns, 1995 b.

mushrooming of local CSO's with very little structure to the whole process and little general understanding of the concepts of not-for-profit and non-government[47]. Interestingly, under UNTAC the UN High Commission for Human Rights (HCHR) created a permanent presence, and its education unit helped the creation of a number of local human rights CSOs.

After decades of strife, issues are still highly polarized. Groups that agitate on rights issues, such as unions and human rights groups have experienced severe problems of political recuperation and antagonism. CSOs in general have therefore tended to take a sort of division between development and administration (politics) for granted, and concentrated mostly on community development issues which they mapped out as their exclusive domain. Over the past decade, many CSOs have supported village development committees and sundry other structures above and below village level. Local interest groups created as a prototype of people's organizations have generally tended to be small and single-issue: rice-banks, cow-banks, micro-credit groups, small-scale irrigation committees…. These committees and groups have sometimes suffered from the same impediments, basically a lack of transparency, usually attributed to government. Although the contribution of CSOs to community development has been significant, if only in monetary terms, their dominance in village level institution building has also restricted local ownership with the result that the people-based village institutions that emerged are less 'demand driven' than "top-down facilitated". Using a broad brush, experience has shown that the mere existence of CSOs and other civil society organizations does not necessarily promote democracy or pluralism, nor does it automatically create social capital to link different groups. For the most part, CSOs have tended to be service oriented and closely affiliated with the state. Undeniably, their facilitating role has had some success, for example some experiences with forestry management in communities of ethnic minorities in the Cambodian uplands. But the evidence on natural resource management projects seems to indicate that the benefits are not sustainable in the long term. Management Committees are disbanded or abandoned, and the livelihood base remains only marginally improved, if at all. The sheer magnitude of the problem in fisheries demonstrates that creating collective action on the basis of a collection of individual users (as in fisheries) rather than traditional user groups (as in NTFP) is a very difficult process indeed. A complex set of stratifying factors involve the inequitable distribution of resources within villages, competition between user groups in managing resources, likely no-benefit perception of segments of these user groups, such as women, etc. Social change, clearly, is not to be equated with the presence of numerous types of organizations.

SEILA

In Cambodia, the challenge to achieve collective action not through homogenization of interests but through deliberate organization, has been answered not only by Civil Society organizations, but by state-sponsorship directly. in 1996, the Royal Government established the "Seila Program". The early phase of the Seila program was an experiment in decentralized and deconcentrated planning, financing and implementation of development at commune and province level. Informally elected Village Development Committees (VDC) played a major role. To finance priority rural infrastructure projects identified through a demand-driven pro-

[47] It would be too harsh a judgment however to dismiss civil society out of hand. It should be borne in mind that the NGO sector has often provided the only effective service delivery in rural and remote areas, and that NGOs account for an estimated 40% of technical assistance expenditure in Cambodia. At the ICORC 2 meeting in Tokyo in 1995 the international NGOs pledged an infusion of 80 million $ over a period of 5 years.

cess, experiments with decentralized systems were promoted in three areas: planning, financing, and management. By stressing the right of communities to be organized and make decisions, instead of the previous control-oriented top-down relation of governance that went from the central state down to the so-called ten-household level, the VDC/local planning approach fashioned a new mode of relation between the central and local government tiers. SEILA covered a total of 509 communes in 12 of the 24 provinces by the end of 2001. Over this 6-year period, $ 75 million in domestic and external resources were disbursed to support sub-national governance and development. The SEILA approach has since graduated and been mainstreamed into a full decentralization programme. The RGC has adopted SEILA programme elements, structures and systems into national policy and regulations, integrating these into the normal function of province and commune administration. This includes the Commune Sangkat Fund and the Commune Planning System. Yet, beneath the hurrahs of the development community, a headwind has been distinctly noticeable. As one study noted, "*SEILA demonstrates the difficulty in breaking the cycle of decision-making by small groups of powerful people and establishing more participatory governance. It also highlights the unwillingness of some lower or mid-level officials to take responsibility*"[48]. This is reflected in other detailed case studies from the NGO public. One of these states that "*most village leaders are by no means transparent in their decision-making and appear to feel no obligation to be accountable to villagers. Their status as leaders is taken to mean the right to decide on behalf of villagers*", and "*village meetings usually mean a gathering of villagers to listen to what their leaders have to announce or communicate to them*"[49].

Briefly, in considering the role and experience of external catalysts in stimulating collective action in Cambodia, four features deserve emphasis. In terms of ownership, these remarks are relevant for any pretense to sustainability. The first is the legal standing of these partnerships between local users and external catalysts; in most situations user groups have no property rights over the resource and no statutory power that is independent of a specific department, program or project. The amount of autonomy they have to develop strategies therefore is questionable as is their incentive to do so, if they cannot ensure that they will reap the benefits. Second, because user groups are established by these external agencies and often rely on them for funds, they have no local accountability. Further, a large number of interventions have been anchored in the VDC approach, centered on participatory planning methods. This raises the specter of over-planning for limited resources or a limited response, and the problem of sustainability associated with the cost of continuous facilitation. Planning, conceived as a process to request inputs from outside, rarely contains development solutions which are not conditioned by external inputs and which are not implemented and funded as public works, typified by complex tendering processes, detailed work orders, target-orientation etc. The rules and regulations needed to manage the information and monitor the system are such that they create a second-level problem of moral hazard, a principal-agent problem, where the community does not effectively control its representatives on management committees etc. Moving away from a physical target focus is also relevant in considering that NRM is very often not about 'new' investments, but about 'what is already there'. As one person put it: "*as far as NR are concerned, people talk a lot about their scarcity, but there is always the feeling that there is much, 'only not here' but in the forest concession areas and fishing lots*"[50]. With the focus in support to coordination efforts so much on the planning process, small-scale infrastructure is high, if

[48] NGO-Government partnerhips in rural development, Mc Andrew, Cambodia Development Review, Dec. 1999, p.10.
[49] The impact of armed conflict on social capital: a study of 2 villages in Cambodia, Veena Krishnamurty, study conducted for the World Bank by Social Services of Cambodia, March 1999, p.65.
[50] Personal communication, DED support to Community Fisheries, Kampong Thom province, August 2003.

not exclusively on the priority lists of communities. Infrastructure creates new things (wells, bridges…) which are visible, while NRM is "*about things that are already there*", so why do something? Finally, attempts to encourage solidarity and group cooperation may backfire by reminding Cambodians of the collectivism of the Pol Pot and Heng Samrin regimes. Meetings called by external actors are reminiscent of those days when villagers were expected to listen to political propaganda, not participate.

(Some) Evidence from the field

If so, what about the wave of new community forestry and fisheries committees in the wake of the recent policy directions of the Cambodian state? To touch base with reality in the field to date, to the extent that it concerns NRM, is not all that simple. Earlier, mention was made of the fact that these committees were impromptu in nature and design and still very much untested in terms of impact. A number of preliminary reviews however have taken place. One of the most extensive of these concerns the support of the CFDO (Community Fisheries Development Office) under the DoF, in cooperation with a local NGO, to a total of 19 village committees in the province of Kampong Chhnang. This support started some years ago under the Cambodian Capture Fisheries Component (CCF) of the Mekong River Commission's interventions, which was involved in research activities on fishing lots and conflict resolution. The CFDO considers this area to be its "laboratory of community fisheries development", with particular attention on three villages[51]. For an easy overview, I summarized and integrated their results in the framework of Ostrom's design principles, complemented with some personal observations as I visited two of these committees in August 2003, in addition to 10 other Community Fisheries and Forestry Committees in other provinces[52].

Figure 9: Review of Community Fisheries organisations' practices in 3 former fishing lot areas

Design Principles	Review of practices of CFO (Community Fisheries Organisations)
Clearly defined boundaries	• Group: Village-level users (excluding outsiders and non-Khmers even when these are users); fairly homogeneous in terms of dependency on fisheries; membership not clearly defined, as is difference between rights and responsibilities of members/non-members • Area: No group had a map of the boundaries (in Kampong Thom I visited a CFO that actively used a map in the discussions)
Congruence between appropriation/provision and local conditions	• Area: ambiguity in draft sub-decree on role of CFO in so-called 'public areas' • Gear: ambiguity in definition of 'family-scale gear' on use of specific gear-types and practices such as cage culture, seine nets, bamboo fence traps, and *yor*[53]
Appropriate collective choice arrangements	• Gender: very poor representation of women • Meetings: in most villages no regular meetings of CF; only 16% of community members participate in meetings when called; some sensitive issues not raised when people in positions of relative power participate • Transparency: some committees operate by consensus, other secret decision-making; no policy on expenditures of incomes raised through membership fees, fines, and selling rights (used

[51] Degen, P., Yin Dara, Lieng Saroeun and Chap Piseth, op.cit., March 2002; in practice, support entailed assistance to: draw up fisheries management regulations, implement them, and network between the CFOs and other stakeholders, particularly fisheries authorities.
[52] Ostrom, E. (1990). Governing the Commons: *The Evolution of Institutions for Collective Action* (Cambridge: Cambridge University Press), p.90.
[53] Bag net used in conjunction with a barrage to fish small rivers during times of fish migration.

	mainly for patronage of religious functions and fitting out patrol teams) • By-laws: all CFO have by-laws, although most simply adopted by-laws from one leading committee • Leadership: in 2 villages not elected; in 3 villages members demanded and obtained re-election (after review discussions)
Monitoring by accountable appropriators	• Accountability: only 1 CFO patrol team makes reports; some involved in illegal activities; some legal activities only possible in making deals with CFO officials • Participation in patrolling: villagers assist in reporting and patrolling (fringe benefits in sense that they can fish in protected areas while patrolling these areas) • Awareness raising: reported stress on awareness raising in informal manner (not through meetings) and measurable impact
Graduated sanctions	• Consistency: reportedly applied across the board also against powerful people; use of 'education' and then fines; there may be consistency problem in the lack of accountability of some patrol teams themselves • State intervention/support (DoF) : no apprehension of culprits of illegal activities, even when handed over by CFO patrol teams
Access to conflict resolution mechanisms	• Not clear what mechanisms exist for conflicts between appropriators (e.g. 'outsiders' who trashed a pond in frustration), and how some decisions were reached and how they can be appealed, esp. since there are few meetings which are poorly attended
Recognition of rights to organize	• Not problematic, although in other areas visited (Kampong Cham province) this was pre-empted by the DoF, which organized 'paper organizations' in each commune
Muliple layers of nested entreprises	• Federation exists at level of three former fishing lots, although role and functions not clear; no clarity as to how nested enterprises should/could relate to administrative divisions (commune, district, province) or to envisaged provincial level CF committee

In studying these features, it must be emphasized that these villages were strongly facilitated relative to others. Taking this into account, a number of observations must be made. These statements, obviously, are indications rather than universal conclusions, given the very limited sample on which they are based. First, the very uneven implementation across villages of a similar framework, even in such a limited locale, points to the importance of local conditions and leadership for success. By itself, the existence of an association does not reveal what proportion of users is acting collectively. Second, the ambiguity in terms of the large number of gray areas has left open a sizeable space for negotiating the application of the government directives. Unfortunately, in those cases where the committees were insufficiently controlled by their members, gray areas have meant opportunities for rent-seeking by the committee leaders. Handling money transparently has proven tricky almost across the board. Third, there is a disparity between the investments for assuring a democratic process (regular meetings attended by a majority of users) and those for enforcement purposes. Yet, enforcement by appropriators will have to incorporate accountability to the users at large in order to steer clear of disintegration into rent-seeking activities. Fourth, the most relevant state organ in question, the provincial DoF, is not supporting the exercise in a meaningful way, underlining the ambiguous situation as far as actual legitimacy of delegating the administrative distribution of rights to the users themselves is concerned. Finally, the question of conflict resolution and the manner of creating nested structures have definitely not been given the attention deserved from a sustainability viewpoint.

5.5.3 Entitlements as fuzzy sets

The role of private bargaining to bring them into focus

What has been established so far with regards to the property regime applicable to Cambodia's common-pool resources? The five following points give a summary;

- State intervention in the management of village-level resources has threatened sources of subsistence livelihood and created conflicts. The government now wants local users to participate in the management of their common-pool natural resources, in a manner that distributes access to the resource flows more equitably, and makes them responsible for the maintenance of the resource base (performance). This entails a redistribution of benefits away from the commercial sector to the subsistence sector, through instituting administrative rather than bargained relationships at the local level.
- The framework conditions (legislation and policies) that make up the constitutional rules about how to organize and operationalize management by the local users are incomplete. There are gaps, overlaps, and inconsistencies that need to be addressed. The very existence of these inadequacies demonstrates the contested nature of the planned reforms in terms of redistribution of costs and benefits. What may seem inadequacies from an equity-maximizing perspective (e.g. no provisions for community forestry), may actually be capability-enhancing (or preserving) from another, e.g. commercial forestry, viewpoint.
- Even with a set of conducive framework conditions (in terms of the desired performance), local users, which may have very different objectives within and between sectors, need to co-ordinate effectively to organize and operationalize effectively a choice set that otherwise would not exist, in order to structure their interdependence and manage exclusion. Traditionally, collective action at community level in Cambodia, with its loosely organized communities, has not been the result of deliberate organizing efforts, but rather of the homogenization of interests (the aggregation of many similar localized actions), of which the integrative focus was religion and risk-pooling between kinfolk.
- The penetration of market forces has rendered such collective action more complex, because of a decrease in mutual vulnerability. It is an open question whether there is a sufficient level of social capital, the willingness to trust others even when predictability is low, acquired from a wide variety of interdependent settings, to spontaneously provide the decentralized institutions desired. Decades of conflict may have eroded trust. External catalysts have been active but with mixed success. The favoured approach seems excessively concentrated on the planning of external inputs and based on top-down facilitation, apparently unfit for NRM judging from relatively meager results (performance) so far. From the vantage point of sustainability, there is an insurmountable limit to external facilitation in terms of achieving a situation with robust decentralized monitoring and enforcement capabilities.
- The very slowness of the incremental self-transformation involved in the process of supplying institutions, potentially pre-empts the performance objective of sustainable NRM. This is so because the uncoupling of the economic from the social spheres through market penetration (so that access to CPR is no longer independent of private accumulation), transforms the global 'Assurance Game' setting into one of a series of discrete 'Prisoner's Dilemma' games, of which the dominant pay-off structure is defection (non-cooperation).
- A limited review of field experiences demonstrates the sense of ambiguity involved in the organization and operationalization of administrative rights that are being transferred to local users to determine conditions of access to and exclusion from the commons. This ambiguity is partly a result of the vague frame-

work conditions. It also reflects the level of potential and skill to handle an assurance setting through organized collective action. The lack of clear collective support for administrative transactions seems to induce the various users to engage in bargaining transactions.

Taking the analysis further on the basis of the last statement, when a collective does define rights to commodities, must that definition not necessarily be ambiguous to some extent, some kind of 'uncertainty principle'? The increasing cost of specificity of rights calls for the application of rights to a large number of circumstances[54]. The result of this ambiguity is that rights themselves can be represented by 'fuzzy sets' which individuals are continually making efforts to bring into focus through bargaining. Such negotiations take place in gray areas of transactions[55]. These "bargaining transactions" refer essentially to what this paper presented earlier; where the basic structure of a situation is changing, hence in a situation of increased ambiguity, the different appropriators proceed by heuristics before establishing more robust institutions. Hence the choice to engage in a bargaining transaction is one response to a situation in which transactions over a commodity do not (yet) have collective support, rights are not well-delimited and constraints not well-defined. It is assumed that in situations characterized by rapid transformation rather than incremental adjustment, the gray areas temporarily increase as the search of various transaction partners for a scheme of cooperation leads users to try and stretch the function of existing institutions to new circumstances[56]. During bargaining, transaction partners bargain within an existing institutional structure that defines 'transaction sectors'.

Gray areas in bargaining: a model

Models are analytically convenient to specify a type of institutional structure (set of rules) to achieve a given performance (opportunity set), and to specify the institutional variables. Within the SSP model, decisions on the production of a good or service by interdependent people are based on the attributes of goods, community, etc. As in the SSP model, Swallow used the commonly-accepted classification of three commodity and transaction-sector pairs (private goods and the private sector, common-pool goods and the collective-action sector, public goods and the public sector) to study the gray areas in institutionally ambiguous settings. The model represented in figure 10 is slightly adapted from Swallow to include the public sector as well as the type of transaction (in the columns and the rows of the matrix respectively). The overriding principle for assigning commodities to sectors is the collective cost of defining private rights to benefit streams, which is determined by the degree of rivalry of consumption and the cost of excluding others from consumption. Since private goods tend to have high rivalry of consumption and low costs of exclusion, the collective costs of defining and protecting private rights of ownership are relatively low, such that property rights are best held by an individual and transactions are sufficiently supported by the private sector; incentives for cooperation are based on utility, and transactions are impersonal and *quid pro quo* in nature. The collective costs of defining private rights to common-pool goods are prohibitive, so that the appropriate sector for supporting transactions over these goods is the collective-action sector; the collective defines itself as the holder of property rights, normative-voluntary incentives and enforcement support cooperation in transactions, and transactions are not *quid pro quo*. In the case of public goods characterized by low rivalry of consumption

[54] Sen, A.(1984). Resources, values and development. Cambridge: Harvard University Press.
[55] Swallow, K. Collective Action and the Intensification of Cattle-Feeding Techniques, a Village Case Study in Kenya.s Coast Province, November 2000, CAPRI Working Paper 10.
[56] Mearns, R. (1995 a). Community, collective action and common grazing. Paper presented at the Fifth Common Property Conference: Reinventing the Commons, 1995, Bodo.

and high costs of exclusion, the public sector, where individuals' incentives for cooperation are based on the credible threat of enforcement by the state, is the most appropriate. In the continuum between the private and the collective-action sectors, Swallow established reciprocal transactions (also called status transactions, FVA) motivated by normative-voluntary incentives, where the terms of transactions are based on a personal relationship between the transacting parties. The resource is owned by a collective, and normative-voluntary incentives are sufficient to insure cooperation. Operationally, a commodity is considered to be transacted over in a gray area between two transaction sectors when, in practice, there is evidence of its being transacted over in both sectors.

Figure 10: sectors of commodity transactions: conceptual framework

	Private Transaction Sector	Gray Area	Reciprocal Transaction Sector	Gray Area	Collective Transaction Sector	Gray Area	Public Transaction Sector
Type of transaction	Bargained		Status		Collective		Administrative
Rivalry of Consumption	High	Intermediate	Moderate	Intermediate	High	Intermediate	Low
Costs of Exclusion	Low	Intermediate	Moderate	Intermediate	High	Intermediate	High
Holder of Rights of Ownership of Commodities	Individual (Collective Member)	Individual (Collective Member)	Individual (Collective Member)	Contested	Collective	Contested	Collective
Structure of Transaction							
Incentives for Cooperation	Utility	Contested	Normative-Voluntary	Normative-Voluntary	Normative-Voluntary	Contested	Enforced
Personal/ Impersonal	Impersonal	Contested	Personal	Contested	Impersonal	Contested	Impersonal
Means of Access	Pay	Contested	Ask-Don't-Pay	Contested	Don't ask	Contested	Don't ask

Source: adapted from Swallow, op.cit.

Figure 11 applies this classification to the situation in Cambodia, using a few examples from fisheries on the basis of the review by Degen et. al. This evidently is non-exhaustive. Note that the band for the reciprocal transaction sector and the gray area between it and the collective action sector is barred. Clearly it is not unimportant; in rice-field fisheries for instance, members of a collective gain access to a private property (an inundated paddy field for fishing). Rather, in an ambiguous transition period, where new networks of patronage are being established, the agent controlling access to a particular resource may grant access not against payment in an impersonal transaction, but against recognition of status in a personalized transaction. So at this early stage, making a distinction between a private and reciprocal transaction may not be very meaningful. The exercise gives the following results:

- Fishing in the areas designated for CFO control generally falls in the transaction sector defined by collective action. Exceptions are those cases where the CFO sells the rights to use legal gear. Access in the collective transaction sector is granted by virtue of being member of a defined user community. This immediately has implications for those users who do not fall in that category (Cambodians from another village, Non-Khmer from the same village…); either they fail to get access, or they may be granted access against payment or status recognition. Note that the establishment of community fisheries formally abolished the web of informal stakeholders that hinged on the lessees in the former lot areas, and which previously distributed access. Yet in practice it is still active in certain parts of the community fisheries domain, granting access against payment or status recognition.
- Legally ambiguous categories, either because the legal framework is not clear (cage culture, *yor*) or because the gear is de facto frequently used, considered to be harmless, but illegal as 'family-gear' (longer gillnets, seine nets, multiple hook lines…) would tend to fall in the gray area between the collective transaction sector and the private (reciprocal) transaction sector. By-laws may cover them unambiguously in one situation, or they may be the object of private transactions with the CFO committee or patrol teams in another.
- Various CFOs in the review are petitioning for CFO control of fishing in public areas within their village. There are no legal provisions to accommodate this claim, yet several instances have occurred where the CFO attempted to enforce its by-laws in those sections. These actions are congruent with the collective transaction sector rather than the public sector (local by-laws rather than the Fishery Laws enforced by fisheries inspectors, even the importance of the origin of the user – village, ethnicity - in attempting to exclude specific categories of users whereas the public domain must be accessible to all etc.). In addition, the practice has been that access to specific areas of the public domain had to be negotiated against payment with administrative stakeholders (military, police, fisheries inspectors, commune council and village officials…), irrespective of the fact whether the aspirant-user hailed from a specific village or not. There are no indications that these specific practices have changed.

Figure 11: Means of access in fisheries by transaction sector: selected examples

	Fishing in CFO controlled area (family-gear)	Cage culture	Brush Park	Yor operations	Fishing in public areas (permanent lakes and streams)
Private					
Gray	√	√	√	√	√
Reciprocal Gray					
Collective	√				
Gray					√
Public					

Amongst the villagers' varying responses to the need to manage access and exclusion collectively, the experience shows a step-wise adjustment rather than the radical change desired. Whereas users may experiment with the new provisions as an organized effort more or less intensively (cf. the different experiences in just 15 villages), in the margins, depending on attributes of the area, gear type, and user, the cumulative effect over time of the usual practice of separate bargaining transactions will determine what constitutes collective action. This is in line with the home-grown experiences of collective action in Cambodia, where the

homogenization of interests, through the aggregation of many similar localized actions, has been the norm rather than the exception. It also accommodates the previous practices established over years of transition to a market economy, specifically the web of administrative custodians exchanging their authority for access rights, against payment or status recognition. The brief review of CFO practices established some cases where the newly appointed custodians, CFO committee members and patrol teams, engaged in the same practices in the area under their control. Given that the review took place in an area under intense scrutiny by the authorities and civil society for several years, these effects can be anticipated to be even more pronounced in more remote and/or less scrutinizes areas.

Firm conclusions cannot be drawn from the above information. To do so would require the appraisal at repeated intervals of well-defined variables that measure the extent of collective action, income redistribution, and ecological preservation, on the basis of a larger sample that allows comparing variations across sectors (forestry, fisheries), geographical area etc. Lacking such data, it would not be fair to draw pessimistic conclusions, considering that the collective action ability of user groups may not have been properly tested in the absence of essential (framework) conditions for success. What is more, the possible effects of the current decentralization exercise on collective action and hence on the desired 'performance' have not been charted. The decentralization process established three distinct institutional systems that have legitimacy for natural resource management: user groups, the state and its line departments, and the system of local governance. This state of affairs throws up a battery of questions; How can these three systems complement each other to ensure equitable, efficient and sustainable NRM? Informal user groups are already operating, so why not simply let them be? In what ways can/will a decentralised system support and sustain collective action that leads to the wanted policy outcome? Why would line departments who exercise considerable control over natural resources be eager to hand over authority to the (local) political system? Is it safe to assume that the public sector, under pressure to reform, has inserted a new layer of governance that not only demonstrates conformity but also effectively changes underlying institutional relations? Can economies of scale be achieved within the boundaries of a Commune Council and if not what are the appropriate boundaries for NRM?

6. New decentralized commune governance

6.1 The promise of decentralization: opportunities for NRM

Natural Resources are locally specific, diverse, have multiple users, and require local knowledge in designing their management. Decentralization has the potential to put discretionary powers in the hands of locally accountable representative authorities and to allow institutionalization and scaling up of the popular participation that makes NRM effective. The process is equivalent to moving from ad hoc and experimental mobilization to more institutionalized forms of participation. At the same time decentralization creates the chance to scale up these popular participation efforts from the village to the commune level, while downward accountability creates a mechanism for achieving greater equity and efficiency. Consequently, all attention has been focused on the recently elected Commune Councils as a local (resource) management institution which has statutory rights, is locally accountable, and has a mandate to plan independently of departments or projects. This leaves room for state-based and community-based modes of governance to be combined in numerous and imaginative ways. In principle, these developments respond to the fundamental concern of re-

shaping collaboration between administration and resource users, in view of the remarkable fiasco of the central state's 'Solo Slim' intervention in natural resource management in Cambodia. Active participation of local users as a key element of collective action in organizing and operationalizing community-based natural resource management, does not inhibit a critical role for the state to lift the restrictions of local-level collective action. Efficient service provision is best achieved by the "subsidiarity" principle, where responsibility for the provision of services is assigned to the lowest level of government compatible with the size of "benefit area" associated with those services. The benefit area for the maintenance of an irrigation reservoir dam is clearly the (local) community of users, but for biodiversity conservation for example the benefit area is the entire nation. National government will likely not be efficient in handling the maintenance of a reservoir dam, just as leaving the supply of services with wider benefit areas to lower units of government will result in the under-provision of these services.

So the state has a definite role to play, and it may occupy this new-found niche with gusto. Amartya Sen, already mentioned, found that democracies tend to be better at preventing famines, probably because governments in democracies are charged with being responsible to the needs of the people who elected them. Yet a burning question continues to smolder at the core of the debate on the role of local government in NRM. Decentralisation has not worked in the way that theory had predicted it would in terms of promoting good governance. A part of the reason is that the assumptions underlying decentralization as a vehicle for good governance, do not adequately deal with power relations and their institutional manifestations. Why should decentralised governments not be rent seeking for example? For one, Commune Councils will have to perform in a national context where accountability is weak, and where there is no history of penalizing officials who fail to carry out their duties. To judge from the evidence in other countries with a sound history of decentralization such as Uganda, local governments seem no less corrupt than their central counterpart. It could be said that much of the pressure to demonstrate good governance comes from donors, and that the public sector, under pressure to reform, has constructed organisations that demonstrate conformity to this approach without changing the underlying institutional relations.

However exact and inspiring all that may be, is it possible for effective organizations not to be based on existing structures of authority? There seems to be some consensus in the Cambodian development literature that the social structure is articulated around patron-client relationships: "*Local agents, in ascending to a noted position in the village, are assessed for and have a duty to assume the role of patron with a circle of clients for the benefits of external aid*"[57]. In practice, this probably means that Commune Councils will be dominated by the local elite. In fact, a frequently observed phenomenon is that the very same people tend to be members of various committees and – this should definitely not come as a bolt from the blue - of the Commune Council. While this may be an alarming notion, it also conveys the picture that – in a Cambodian outlook - rules made by the majority carry little legitimacy in the eyes of the powerful. The issue therefore is not whether new structures replicate older structures, but rather whether and how the leaders can be made to use their prestige to impart legitimacy to new developments and provide the authority structure required

[57] Conference on the meaning of community in Cambodia: volume 2 literature reviews, Working Group on Social Organization in Cambodia, June 1999, p.17.

for the proper enforcement of rules[58]. It is true that local governments in Cambodia carry with them a legacy of acting as agents of the (communist) State, and are struggling to overcome a culture of closed government. There is the associated danger of subjecting NRM to the priorities and ambitions of political parties, given that the Commune Council is constituted via popular elections conducted on the basis of party lists. There was anecdotal evidence that in one province, the DoF had organized 'paper' community fisheries organizations (thereby pre-empting the formal recognition of others), on the basis of members' adherence to the ruling political party. In a Kampong Cham irrigation project, there was evidence of an overlap between the CC and the end user committee. Bringing the area under irrigation appears to have led to a higher concentration of land ownership, as certain parcels of land were taken over by more wealthy villagers. So definitely, vigilance is needed to ensure that the actions of the elite do not work to the disadvantage of vulnerable groups in Cambodian society. Yet it would not be appropriate to take these elements to be a blueprint of all that is to come. Doing so would be tantamount to prematurely dismissing the nascent collective action capacities of Cambodians who, after episodes of war and genocide, and a process of stark economic transition, landed up in a very dynamic social as well as ecological environment.

6.2 Decentralization framework conditions and opportunities for NRM

Decentralized commune governance in Cambodia took off with the elections of 1,621 commune councils in February 2002. Each council is directly accountable to its local electorate for its performance, and indirectly accountable to the state for the legality of its actions. It is envisaged that these councils will evaluate their own needs and priorities, make their own decisions on local affairs, and promote or provide a wide range of local services and development at their own initiative. The Commune Law set up a National Commune Development Fund as the depository and distributor for all revenues and funds from national and other sources to commune councils. Access by commune councils to the Fund is dependent on commune councils preparing a development plan and budget. Proposals are coordinated at district and provincial level through a District and provincial Integration Workshop, where communes, line departments and civil society actors meet to fine-tune planning. In these exercise, a number of priorities are set for each commune, for which it will be directly responsible in terms of implementation, monitoring, and evaluation through accessing the Commune Development Fund. Under the Commune Law, commune councils are also entitled - in principle - to their own local revenues in the form of local taxes, charges, fees and re-imbursement for agency services. National legislation is still required to authorize and define local taxation. The following paragraphs will briefly consider what could be the opportunities for NRM under the current framework conditions for decentralization in Cambodia, as well as note a number of concerns that spring from these conditions.

6.2.1 Opportunities

What specifically are the opportunities in linking collective action by local users to the decentralization framework? Several can be mentioned. To start, it may inform the planning outlook, in the sense that it can integrate NRM with wider development strategies and link local processes to the constitutional commitment

[58] Platteau and Baland, op.cit.. (1996). Note that in Cambodia the Sangka, the conglomerate of Buddhist monks, is also an important factor in bestowing legitimacy and providing authority. This has worked to the advantage of community forestry in a number of cases. Yet when it comes to fisheries, due to the norms of Buddhist belief, the sangka is not allowed to act: a monk is not even allowed to pronounce the word 'fish'.

of the State to represent and promote the interests of vulnerable groups and enhance equity. Further, tapping into the vertically integrated political/administrative structure, may have advantages in terms of scaling-up as well as providing possibilities for user groups to formally and transparently raise revenues and benefit from the Commune level as a nodal point for downward fund flows. Also, decentralization provides a unique conduit to obtain legitimacy for local regulations by having them endorsed by the Commune Council and made into by-laws adopted by the CC. Subsequently, the State at its various levels has the responsibility to protect rural communities against the damages caused by broad forces and other economic sectors, such as pollution by DDT or siltation caused by excessive logging. Such damage may actually do more harm to village-level resources than the harvesting efforts of the direct users themselves. The role of the State derives here from its power to deal with externalities which, by their size or their nature, require the possibility of centralized intervention.

Next, Commune Councils can supply formal conflict-resolution mechanisms to be used whenever conflicts cannot be settled at the user group- or community-level, or whenever disputes between opposing user groups have to be adjudicated. Such mechanisms may be especially required to resolve inter-sectoral conflicts arising from negative externalities, such as the issue of water storage between irrigation groups and users in the fisheries sector. Important lessons may be derived from the functioning of the Land Cadastral Commissions, established at the commune, provincial, and national levels with a key role in settling land disputes. In addition, government through local budgeting processes, can provide financial and technical support to decentralized monitoring carried out by local user groups when monitoring activities require the use of expensive technologies and equipment to be effective (for instance, fast patrol boats in fisheries or aerial surveys in forestry). Finally, local government can play a role in ensuring quick diffusion of information on best practices and working rules of local user groups.

6.2.2 Concerns

While the roll-out of such an institutional change has been impressive, key issues of note concerning community forestry and fisheries and other issues of natural resource management (NRM)are: (i) clarity of mandate and the dissociation between the present institutional framework of community fisheries and forestry and the decentralization/deconcentration framework,, (ii) the different speeds at which the processes of decentralization and deconcentration move, (iii) the size of communes, (iv) the absence of a law that will enable the councils to raise revenue even while community NRM organizations are charging so-called public prices, and (v) the doubtful effectiveness of the complex planning process and Integration Workshops as tools for matching line department and Commune Council and community priorities. Some of these matters have already been touched on in other parts of this paper, and will not be repeated here.

The first key-issue is that of mandate; Commune Councils (CCs) have statutory rights and have a mandate to plan independently of departments or projects, but their competences regarding NRM are unclear. The Law on the Administration of Communes, in Article 46, states that a Commune Council shall have no power with forestry, post and telecommunications services, national defense and security, foreign, monetary and fiscal policy, and '*other areas as provided in laws or legal instruments concerned*'. Conversely, article 61 of the Sub-Decree states that '*the CCs shall protect and conserve the environment and natural resources*'. The latter establishes a general area of competence, which the former turns into a gray area, generating uncer-

tainty as to what exactly are central and devolved competences with regards to NRM. The exact wording need not be limiting; protection can always be interpreted as the active management of '*what is already there*' along with the promotion of contingency measures for '*what is not yet there*' or '*not there anymore*' (e.g. (re-) planting of forest). More significant is the absence of any legal basis for a Commune Council mandate in most of the newly developed NRM related legislation, such as the Forestry Law, proposed Fishery Law, and even the current draft of the sub-decree on community forestry.

Second is the question of matching jurisdictions or administrative boundaries with ecological formations such as forests or lake basins. Most of the Cambodian communes have small populations, varying from under 500 persons to over 35,000 in the largest communes. Their areas of jurisdiction were fixed by previous regimes primarily for policing and controlling the population. The consequences are the already very limited budget of the Commune Fund divided over 1600 ways, ad hoc boundaries with little or no social or economic significance, minimal local revenue and human potential in many communes; the administrative costs of a large number of councilors and clerks and of support and communications. In contrast with the past, new commune councils are development authorities with responsibility for natural resources. Their jurisdictions must therefore be re-evaluated against these requirements, and the need to ensure effective and viable local institutions. In this regard, the mandated Commune Boundary Review will be an important step by removing non-viable communes.

Third, the end result of Cambodian reforms is a specific governmental structure, where the national and local governments are elected but everything in between (provincial and district) is appointed. This practically means that the decentralization processis to be carried out in conjunction with a deconcentration process. These processes have moved at different speeds. The present confusion in institutions has led to an unwieldy mix of deconcentration and decentralization of government activities: elected local government structures are already in place while the Organic Law on Deconcentration has not yet been drafted; there are no specific regulations on delegation of powers to the district administrative level, the function and status of which remains unclear; the way the planning process is conceived, effectively means that line departments and the CCs compete over funds for project implementation.

Finally, the Commune Law set up a National Commune Development Fund as the depository and distributor for all revenues and funds from national and other sources to commune councils. Own local revenue is the cornerstone of fiscal decentralization because it installs an efficiency-enhancing tax-benefit link and it fosters local accountability. CCs are to be entitled to their own source of revenues: taxation, charges and fees as defined by law, and budget and resources to perform agency functions when delegated. Yet while the commune administration law gives the councils the power to impose taxes, it says "*the law shall determine the category, degree and manner for collecting*" them. Until such law is passed, the councils effectively cannot tax their citizens. CCs have so far been entitled to some minimum level of service fees (basically license fees). Meanwhile, a number of community fisheries and forestry groups have been receiving substantial income since their creation, charging so-called public prices. Monitoring and enforcement for instance is costly. In some communities, responsibility for guarding rotates among households. Other communities raise funds to hire individuals to guard resources on behalf of the community. For the community to hire guards, it must mobilize resources for this collective goal. Public prices refer to the revenues received by local governments from the sale of private goods and services (other than cost-reimbursement), such as the charges that some

people are paying in positive or negative fees for access to the forest or fisheries domain. Understandably, this has led to frictions with the Commune Councils, and there have been instances where the Commune Councils demanded that a share be redirected to finance part of their functions[59]. Ideally, no special funds for programmable resources should be tolerated that, once established, easily escape democratic control and protect 'turf' through 'off-budget' funding to protect special interests.

7. Conclusion

Cambodia's management of its common-pool natural resources, forestry and fisheries, is changing. The state is dissociating itself from the responsibilities it assumed, and handing administrative power to local user groups in former concession areas to organize and operationalize the collective action needed in order to supply the required institutions. The management in public areas (open water, protected forest areas…) remains in the hands of the state. The envisaged result, expressed in its macro-level policy documents is growth, equity, and sustainability of the resource base.

The urge to undertake this process came from the impossible situation that had developed on the ground. The state basically fulfilled its mandate by privatizing access to the resource base, handing it over to the market, while it remained in breach of its side of the deal, monitoring and enforcement of the legal framework setting boundary and authority rules. At the same time, the movement of the command to a market economy signaled the increasing encroachment of the market on village structures, and contributed from its end to a radical change in the local relation between endowments in natural resources and the capacities it generated for local users, through altering the entitlements regime, most visible in the property regime covering access to and use of natural resources.

The basic questions this throws up are two. First, can local communities organize the collective action needed and operationalize a regulatory framework that changes the structure of the situation, and avoid the infamous 'tragedy of the commons', even when the market renders this more tricky? Second, what role can the decentralization process play in endorsing these developments? Collective action requires a look at two components: social capital and the structures in which it is embedded, and the strength and consistency of the framework conditions that are to support it. Social capital may have been seriously affected by decades of armed conflict. Nevertheless, informal networks to organize exchange and observance of Buddhist ceremonies are active. A lot of experience in purposely organizing collective action has been created through the initiatives of civil society, mainly centered on the village level, but with doubts in terms of accountability and sustainability. The framework conditions for regulating fisheries and forestry (interpreted in a broader sense as NTFP), have serious gaps, overlaps, and inconsistencies. The end result is one where local organizations of users are active but where, on the basis of preliminary anecdotal evidence, the previous types of transactions that regulated access through an informal network of stakeholders, are still flourishing in the gray areas of the property regime. It is still unclear to what extent this has affected the relative position of some of the stakeholders in bargaining, such as subsistence users, commercial operators, fisheries and forestry inspec-

[59] In one instance, the Council compelled the Community Fisheries organization to fund the costs of the registration exercise for the 2003 national elections; the same Council planned to ask the CFO to provide it additionally with radio-communication equipment (personal discussion with the CC in question, August 2003).

tors etc. in decentralized bargaining. While it may bring more equity, such decentralized bargaining will almost certainly not bring an answer to the quandaries of serious resource depletion.

The current efforts to roll out a comprehensive decentralization strategy in Cambodia are one of the features that may fundamentally affect local power relations. Decentralized commune governance holds a promise of institutionalized local participation, rather than ad hoc, and may propagate a culture of increased and demand-driven accountability. If the commune councils will receive a clear mandate to act on issues of NRM, locally elected representatives can demand accountability as well in terms of the performance of the property regime in their locale; for example, how are the vulnerable groups affected by management rules, and how is the maintenance of the resource base itself being addressed by the user committees? Decentralization also creates a political and administrative level, close to the level at which local users operate. What follows is that with a clear mandate for the Commune Councils, and clearly spelled out rights and responsibilities for local users organizations, the councils can back the functioning of these organizations and democratically control their functioning.

This leaves intact a vision of co-management, where the state directly controls part of the natural resource base through its line departments, which have a new statutory obligation to plan in conjunction with the Commune Councils, and where local user groups control part of the former concession domain. To match access and use levels with administrative and eco-system levels, will demand experimenting with nested structures of user groups and their links with political and administrative levels. Where the private sector remains in charge, such as forestry concessions, agro-industrial plantations, and fishing lots, local communities should acquire inalienable rights, either through the decentralization framework (e.g. natural resource committees) or their local user groups, to be informed, and to help set and monitor the contractual terms of commercial operations. It is important to appreciate that this not only presumes a new capacity of local communities, but also of the state for more coordinated approaches between its own technical line-agencies, and above all a new capacity to articulate and represent local demands. Departments such as Fisheries have traditionally been ‘command and control’ agencies without much appreciation for bottom-up approaches.

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APPENDICES

Annex 1

Performance Indicators for the Sustainable Management of Natural Resource

Source: Donor Working Group on NRM, prepared for the 2002 Consultative Group Meeting on Cambodia

19 - 21 June 2002 Phnom Penh, Cambodia

Long term Objectives	Immediate Objectives	Activities	Target/Indicators
Forestry Sector			
A. Sustainable forest management practices are instituted.	1. Expedite the process of rationalizing forest concession management.	a. Conduct a comprehensive forest resource Inventory based on satellite data and aerial survey.	i. Inventory work commences in selected forests before December 2002 and the whole country completed by December 2003.
		b. All eligible forest concessions submit sustainable forest management plan to DFW by 1 September 2002.	i. Submission of sustainable forest management plans to DFW and an independent evaluation.
		c. Concession management plans are made public prior to approval and affected stakeholders are being consulted.	i. Stakeholders feel their interests respected and endorse the planned activities.
			ii. Management plans are in line with the draft policy guidelines and ESIAs approved for all management plans.
		d. Selected review panel conducts a thorough review of each management plan before permitting the concessionaires to operate.	i. All plans reviewed and decisions taken to cancel contracts, accept plans or seek additional information
		e. All concerned Stakeholders are being consulted during renegotiations of forest contracts.	i. Stakeholder meetings are held for each contract renegotiations.
		f. Decision on the cancellation of forest concessions deemed unsustainable and economically not viable will have been made by 30 November 2002.	i. RGC issues cancellation of not viable forest concession agreements by 31 December 2002
			ii. DFW presents management proposals for cancelled concessions.
		g. Legally and illegally cut logs in all forest concessions are inventoried, and tracking system to ensure the chain-of-custody of logs are instituted.	i. Dissemination of inventory report on log stockpiles.
			ii. Log tracking system is operational.
			iii. Independent verification of inventoried logs
	2. Transparency in the movements of logs and royalty payments, consistent with Prakas No. 5721.	h. DFW issues public notification in advance of the amount of logs are permitted to transport by a logging company.	i. All log transportation permit data is made public through a public notification program and verified independently.
			ii. Royalty payment report is hared with relevant donor and made public.
			iii. Report of the Ministry of Economy and Finance on forest royalty payment is verified independently.
B. Forest crime monitoring and reporting program operates in a highly effective and independent manner.	1. Improve verification system and working relationship between project staff and independent monitor.	a. Procedures are developed and applied for timely response to forest crime reports.	i. Investigation procedures are approved.
		b. Response time to investigate report of forest crime by the DFW and DI is limited to 14 days	ii. DFW completes investigation of forest crime reports within a month of notification.
		c. Forest crime case tracking system is maintained up-to-date and made available to the independent monitor.	iii. Forest Crime Monitoring and Reporting Unit (FCMU) and independent monitor conduct joint field investigations.
		d. The forest crime monitoring and reporting project cooperate to conduct joint field investigation with the Independent Monitor and other interest organizations and share relevant information.	iv. Cases are documents to the public, violator of the law are prosecuted.
			v. FCMU, independent monitor and other concerned parties meet regularly to share information and review cases.
	2. FCMU functions with full independence.	a. The roles, responsibilities and office of the FCMU are transferred to another national authority.	i. Staff or FCMR as well as Independent monitor are given full and unrestricted access to all forestry concessions, forest lands, and wood processing facilities.
			ii. Normination of a National Director entrusted with Strong T.O.R
C. Legal frameworks for the forestry sector are in place for the implementation of sustainable forest management.	1. National Forest Policy is developed in full consultation with concerned stakeholders.	a. The draft National Forest Policy is submitted to the Council of Ministers by 30 June 2003.	i. Council of Ministers adopts the National Forest Policy in the last quarter of 2003.
	2. Draft Forest Law is approved by National Assembly	a. DFW presents briefs on the new law and informs the public.	i. New law is implemented in the provinces and local staff can understand and explain the law

	National Assembly and signed into law by 31 August 2002.		ii. Dissemination and awareness campaigns are implemented.
	3. Expedite internal review of the draft Community Forest Sub-decree, and the review process is made transparent to stakeholders through the Community Forest Task Force.	a. Hold stakeholders consultation to discuss any changes made during the internal review of the draft sub-decree.	i. Consultation meetings took place, if changes were made to the sub-decree.
	3. Draft Community Forest Sub-decree approved by the CoM and signed into law by 30 September 2002.	a. DFW organizes training for its staff for implementation of the new sub-decree and makes public announcements on the sub-decree.	i. Community forestry offices are organized and staffed in each province. Commune councils informed on new sub-decree.
	4. Take stock of Cambodia's permanent forest estate (PFE) with a view to initiate participatory rational forest land management.	a. Definition of state forest land is agreed upon.	i. Report of initial findings.
		b. Review of PFE is initiated in 3rd quarter of 2002.	ii. Preliminary base-line boundaries are established.
			iii. Stakeholder consultations initiated.
Fisheries Sector			
A. Successful implementation of the Prime Minister's (PM) Order of October 2000 utilizing sustainable fisheries management practices.	1. Develop responsible and productive management of released fishing grounds by local communities.	a. Establish community fisheries offices in each concerned province and training of staff to serve as facilitators in each province.	i. Provincial officers are equipped and staffed with trained staff who understand community fisheries.
		b. Facilitate community organization and management of released fishing grounds and other appropriate areas.	ii. All areas released from commercial fishing lots are managed under community fisheries by 1st October 2003.
	2. Establish provincial community fisheries coordination committees to guide the development of the program and to resolve conflicts.	a. Provincial Governor serves as "chairman" and members are selected from concerned district governors, commune chiefs, and other stakeholders.	i. Regular meetings are held and minutes sent to the DoE and MAFF.
		b. Establish communication protocol between the coordination committee and community fisheries organizations	ii. Decrease in reported conflicts
	3. Promote transparency in commercial fishing lot operation.	a. New burden books are drafted in consultation with local communities.	i. Reduced conflicts between fishing lot and local people.
		b. The auction of fishing lot in 2003 in conducted in a public and transparent manner with independent observers.	ii. Lots are awarded in a fair manner to the highest bidder.
B. Legal frameworks for the fisheries sector are in place for the implementation of sustainable fishery management.	1. Draft the Fisheries Law in full consultation with concerned stakeholders.	a. DoF initiates at least four stakeholder consultations.	i. Stakeholder consultations had been held.
		b. DoF submits Draft Fisheries Law to MAFF in last quarter of 2002	ii. Draft law had gone through the legislative process in a timely manner as shown in the "activities" column, with public comments are invited at each step of the process.
		c. MAFF submits Draft Fisheries Law to Council of Minister in second quarter of 2003.	
		d. Council of Ministers submits draft law to National Assembly for deliberation 31st August 2003.	
	2. Draft the Community Fishery Sub-decree in full consultation with concerned stakeholders.	a DoF submits Draft Community Fishery Sub-decree to MaFF in last quarter of 2002.	i. Stakeholder consultations held.
		b. DoF submits Draft Community Fishery Sub-decree to MAFF in last quarter of 2002.	ii. MAFF reviewed and incorporated appropriate public comments, and submitted it to Council of Ministers in the first quarter of 2003.
		c. MAFF submits the draft sub-decree to Council of Ministers in first quarter of 2003 for deliberation and endorsement.	iii. Council of Ministers deliberated and endorsed the sub-decree by 31st August 2003.