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## **CPRs and International Development – Select Committee-style parliamentary briefing paper**

### **Summary**

This briefing paper is the outcome of a survey of projects on Common Pool Resources (CPRs) carried out under the Department for International Development's (DFID) Renewable Natural Resources Resource Strategy (RNRRS). A total of 43 projects were reviewed. The survey also involved a wide consultation with researchers and practitioners involved in the management of CPRs and a review of relevant literature.

CPRs are communally managed natural resources that play a fundamental role in poverty alleviation and mitigation. They are used extensively by poor people for subsistence, generation of livelihoods, and avoidance of periods of stress. Appropriate management of CPRs is essential to achieve goals one and seven of the Millennium Development Goals.

CPRs are also central to the implementation of international agreements such as the Convention on Biological Diversity and the Kyoto Protocol. CPRs offer the possibility of meeting both the environmental and social targets of these agreements.

CPRs are under threat from an increasing shift towards privatisation. Forests and game reserves have often been alienated from communal control by the State. Macro-economic policies such as debt relief do not recognise the importance of CPRs for poverty alleviation.

Technical innovations aimed at poverty alleviation need to be placed into appropriate property rights and governance systems or they may not be beneficial. Similarly, macro-economic approaches to poverty alleviation such as debt relief may be ineffective if poor people's access to natural resources is not first ensured via appropriate management systems. Future research on poverty alleviation that involves technical innovations needs to include a strong social science component. Areas where CPR research is needed in the future include integrating social criteria into poverty indicators, the role of CPRs in mitigating and building poor peoples' resilience to climate change and biodiversity loss, the impacts on poor people's livelihoods of the trend towards privatisation, and the role of urban CPRs.

## 1. Introduction

1. The livelihoods of many people in developing countries, especially from the poorest and most marginalised groups, are inextricably linked with Common Pool Resources (CPRs). **CPRs are natural or man-made resources such as forests, water, fish, and grazing land that are available to more than one person and are therefore accessed by multiple user groups and usually managed communally.**

2. The function of this briefing paper is to demonstrate the importance of CPRs for poverty alleviation in developing countries, and draw attention to the extensive research on CPR management carried out under the Department for International Development's (DFID) Renewable Natural Resources Research Strategy (RNRRS). The aim is to make policy-makers aware of the impact on CPRs of policies that promote: alienation of natural resources for nature conservation; privatisation of natural resources to protect commercial and individual interests; and macro-economic approaches to poverty reduction which ignore the need to ensure poor people's access to natural resources. Negative effects of these policies can be ameliorated by using consensus building and participatory techniques developed under the RNRRS.

3. For the last ten years, DFID has been funding a Renewable Natural Resources Research Strategy (RNRRS) at a cost of over £190 million, with 56% of this money spent in Africa. In June 2005, the RNRRS was evaluated<sup>38</sup>. The reviewers found that the science supported by the programme was of a high quality, saying that the 'RNRRS has established itself globally as possibly the leading research programme in natural resource management'<sup>39</sup>. In particular, the review emphasised that the livelihoods approach embraced by DFID had led to important changes in research, with an increased emphasis on social sciences and multi-disciplinary work. The research on CPRs summarised here forms part of the RNRRS work.

4. A report to the House of Commons Science and Technology Committee on 'The Use of Science in UK International Development Policy' recommended that more DFID funding be spent on science and technology to help eliminate world poverty through achievement of the Millennium Development Goals<sup>40</sup>. The report also emphasised that 'natural and social science both have roles to play in international development, as do basic, applied and operational research'<sup>41</sup>. **Research on CPRs is fundamental to achieving the Millennium Development Goals, particularly goals one (*Eradicate extreme poverty and hunger*) and seven (*Ensure environmental sustainability*).**

5. CPRs are also central to the implementation of several international conventions. Much of the world's terrestrial and marine biodiversity is managed as part of CPRs

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<sup>38</sup> LTS INTERNATIONAL (2005). Evaluation of the DFID Renewable Natural Resources Research Strategy. Department for International Development, London. Available on:

<http://www.dfid.gov.uk/aboutdfid/performance/files/ev659.asp>

<sup>39</sup> LTS International, 2005 p. 27

<sup>40</sup> Gibson, I. (2004). The Use of Science in UK International Development Policy. House of Commons Science and Technology Committee. The Stationery Office Limited, London. Available on:

<http://www.publications.parliament.uk/pa/cm200304/cmselect/cmsctech/133/133.pdf>

<sup>41</sup> Gibson (2004) p. 35

under traditional stewardship. CPR management is thus central to the success of the Convention on Biological Diversity (CBD). Forestry CPRs are an important carbon store and so could attract funds under the Clean Development Mechanism (CDM) of the Kyoto Protocol. CPRs have also been a major part of human rights cases brought by indigenous communities, for example the Maasai in eastern Africa, asserting their rights to own property in association with others and to retain access to natural resources. **Appropriate management of CPRs can help countries meet both environmental and social targets of international conventions.**

6. There is a trend towards privatisation of CPRs. For example, there is a shift towards private ownership in African land law<sup>42</sup>. The ‘High Level Commission on Legal Empowerment of the Poor’<sup>43</sup>, launched on 6 September 2005, advocates privatisation as a means of poverty alleviation under the assumption that private land ownership will lead to access to credit and thus wealth generation. Protection for investment is a central theme of the ‘Commission for Africa’ report<sup>44</sup>. If investments are made in agriculture, aquaculture or forestry, then protection for investments through changes in land tenure can alienate local people from key CPRs. **The trend towards privatisation is an important area for future research because it may result in poor people losing their livelihoods by being excluded from CPRs.**

7. Linked to the trend in privatisation of common land is the increasing emphasis by government and donors on macro-economic policy approaches to reducing poverty. Donors are moving away from project support in favour of direct budgetary support (i.e. debt relief). While building political will through agreements on Poverty Reduction Strategy Papers (PRSPs), these approaches overlook the role of CPRs in poverty reduction. **There is widespread concern amongst researchers and practitioners that macro-economic policy approaches to reducing poverty will prove ineffective if sustainable CPR management regimes are not in place.**

8. This briefing paper is based on the findings of a synthesis study<sup>45</sup> of RNRRS work on CPRs conducted by the Centre for Ecology, Law and Policy (CELP) at the University of York. The study included extensive consultation with practitioners, researchers and policy makers involved with issues relating to CPR management and poverty reduction together with a review of relevant RNRRS projects. The aim was to identify gaps in UK Government approaches to CPRs in international development, and highlight insights from the RNRRS that can contribute to improving policy approaches in this area.

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<sup>42</sup> McAuslan, P. (1998). Making law work: restructuring land relations in Africa. *Devel. Change* 29, 525-552. Coldham, S. (2000). Land reform and customary rights in Uganda. *Journal of African Law* 44, 65-77.

<sup>43</sup> <http://legalempowerment.undp.org/>

<sup>44</sup> Commission for Africa (2005). *Our Common Interest*. Report of the Commission for Africa. Available at: <http://www.commissionforafrica.org>

<sup>45</sup> This briefing was produced as an output of project R8501 ‘Synthesis of Common Pool Resource Studies’ supported by the DFID Natural Resources Systems Programme, part of the RNRRS. The project’s Full Technical Report and other related literature is available via [www.nrsp.org.uk](http://www.nrsp.org.uk).

## 2. Nature of Common Pool Resources

9. Common Pool Resources are natural or man-made resources available to more than one person, which can be subject to degradation from overuse. For example, they include the natural resources in forests, grasslands, rivers, lakes, and seas. CPRs are vital for the mitigation and alleviation of poverty in developing countries. **Poor people use CPRs for their own subsistence use and as a means of providing livelihoods and access to new markets.**

10. CPRs can be managed under a range of property rights (see Box 1). These range from private ownership to open access regimes. Under private ownership, access to the CPR can be restricted by the owner. Under an open access regime, the CPR can become degraded through a ‘Tragedy of the Commons’ in which the natural resources are unsustainably exploited in a free for all and the resource becomes degraded. **The ideal property right may therefore be one of co-operative communal management that allows equitable access to defined groups within the community, and ensures usage patterns that do not degrade or destroy the resource.**

### Box 1. Common Pool Resources and Common Property Regimes<sup>46</sup>

In CPRs one person’s use of the commons subtracts from its use by others, and there is difficulty in excluding access. Common property regimes are the institutional arrangements for CPR management, and are dependent on property rights. ‘A property right is an enforceable authority to undertake particular actions in a specific domain’<sup>47</sup>. Property rights are socially constructed, i.e. rights are only effective if they are recognised by the wider community (*de facto* rights), or in law (*de jure* rights). It is important to distinguish between *de facto* and *de jure* rights, since *de facto* rights tend to be only weakly enforced and are often overruled by governments.

Five property rights have been identified with respect to natural resources. These are rights of access, withdrawal, management, exclusion, and alienation. Access rights allow individuals the right to access resources for non-subtractive uses. Withdrawal rights allow individuals to capture resource units from a resource. Management rights allow individuals to make improvements and decisions regarding resource allocation, while exclusion rights allow individuals to decide who should be allowed access, withdrawal or exclusion rights. Finally, alienation rights mean that individuals can sell or transfer their property rights to a resource. The combination in which these property rights are held leads to five types of property rights holders (Table 1).

<sup>46</sup> Note: for a fully referenced summary on this topic please refer to NRSP R8501 Full Technical Report available at [www.nrsp.org.uk](http://www.nrsp.org.uk)

<sup>47</sup> Commons, J. R., 1968. *Legal Foundations of Capitalism*. Madison: University of Wisconsin Press.

Table 1: Property rights associated with different rights holders<sup>48</sup>

	Owner	Proprietor	Claimant	Authorised User	Authorised Entrant
Access	X	X	X	X	X
Withdrawal	X	X	X	X	
Management	X	X	X		
Exclusion	X	X			
Alienation	X				

Property regimes are the result of how property rights are applied to a resource. Open access regimes are the result of a lack of any enforceable property rights over a resource. Instead, ownership is realised on capture of resource units, as is often the case in fisheries where fish become private property once they are caught. In his seminal paper, Hardin<sup>49</sup> described how each user of the commons would act to maximise their benefits from the open access commons while the costs of their use were shared between all users. As a result, the commons would be subject to overuse and this would eventually lead to degradation and the collapse of the resource.

In contrast, common property regimes are defined by communal ownership of resources by an identifiable group, where members generally have proprietary rights. In this case, property rights can be vested in villages, co-operatives, or clans. These rights cannot be sold, but are often passed down through members of a family. When rights and duties are adequately enforced through communal management regimes CPRs are not always subject to open access and degradation.

The ‘tragedy of the commons’ argument has often been used in support of changing property rights, especially in rangelands. As a result, land has been privatised or appropriated by the state as a way of creating incentives to manage resources for the long-term. State property regimes result when ownership rights are vested in the state. However, if the state is weak and unable to enforce those rights, then often resources become *de facto* open access, common property, or private property. When this happens, holding *de facto* rights to a resource means that there may be uncertainty in tenure over the long-term. As a result, there are fewer incentives to invest or improve the resource.

11. CPRs are characterised by complex physical and social inter-linkages. It is essential to understand these inter-linkages in order to develop environmentally sustainable and socially equitable pro-poor CPR management regimes. For example, many game reserves, at the same time as enabling nature conservation, also contain CPRs that poor people rely on for their livelihoods. This means that, while game reserves might attract some income from tourism, they may also involve costs for

<sup>48</sup> Source: Schlager, E. and Ostrom, E., 1992. Property-rights regimes and natural resources: a conceptual analysis. *Land Economics*, 68 (3): 249-262.

<sup>49</sup> Hardin, G., 1968. The tragedy of the commons. *Science*, 162: 1243-1248.

poor people in terms of losses due to crop damage by game and loss of livestock and grazing opportunities. Another example of the complex physical and social inter-linkages in CPRs is provided by man-made fish ponds. In some developing countries, such as India and Bangladesh, fish ponds offer the potential for bringing much needed protein to the poor, helping with both health and income. However, technical innovation in developing fish ponds does not help poor people unless the appropriate property rights are in place to ensure poor people's access to them. In fact, fish ponds are often privately owned. As outlined in the case-studies section below, however, work carried out under the RNRRS has demonstrated that allowing poor people to extract aquatic species that are not of commercial interest from privately owned ponds is a 'win-win' solution that stimulates production of commercially viable species at the same time as increasing biodiversity in the ponds.

### 3. CPRs and Poverty

12. The livelihood contribution of CPRs is well known. In India, for example, CPRs are estimated to contribute around \$5 billion a year to incomes of poor rural households<sup>50</sup>, two-and-a-half times World Bank lending to India in 1996. The economic value of CPRs is explored further in Boxes 2 and 3. **As well as providing an essential subsistence and income base for the poorest and most marginalised social groups, CPRs have also often been observed to support access to new market opportunities among these groups.** Maintaining these livelihood contributions is dependent on the CPR being managed sustainably. Sustainable CPR management thus contributes directly to both poverty reduction and environmental sustainability.

13. Poverty alleviation does not only mean increasing the level of income of poor people. Social indicators are also considered important by the World Bank<sup>51</sup>, including 1) health and education, 2) vulnerability (itself a composite indicator), and 3) powerlessness (this includes qualitative variables such as civil liberties). Access to CPRs by poor people can improve health and education by providing livelihoods. CPRs can also reduce vulnerability by providing resources during times of economic or environmental stress (such as those caused by climate variability, that are likely to worsen under future climate change predictions), and access to CPRs can empower poor people by enabling them access to a jointly owned communal resource.

14. DFID's approach reflects that of the World Bank. In their 'Bridging the Gap' report<sup>52</sup>, DFID takes a 'basic needs' approach to poverty that incorporates not only income, but also health, education, and access to basic services such as clean water. This represents an approach that uses both objective (absolute and relative poverty lines) and subjective (perceptions of power, assets, vulnerability) measures of poverty. Social exclusion (powerlessness) and vulnerability are key elements in the DFID approach. **An important area of future research is to examine the role that CPRs play in poverty alleviation by using a welfare function that includes both social and economic indicators of poverty.**

<sup>50</sup> Beck, T. & Nesmith, C. (2001) Building on poor people's capacities: the case of common property resources in India and West Africa. *World Development* 29, 119-133.

<sup>51</sup> World Development Report (WDR) 2000/2001: Attacking Poverty

<sup>52</sup> Poverty: bridging the gap. DFID / Department for International Development (DFID), UK, 2001.

**Box 2 Economic importance of CPRs in Africa**

In Nigeria, rural women earn between US\$453-750 annually through products collected from forest CPRs<sup>53</sup>. In Mali, all households rely on CPRs to some extent, but the reliance is greatest amongst poor households and women who sell products to buy food. Women earned 79% of their income from firewood and shea butter sales, collected from CPRs<sup>54</sup>. In Ghana, the poorest households rely on CPRs to meet 20% of their food requirements in the lean season, compared to 2% and 8% for wealthy and middle-income households<sup>55</sup>. In Tanzania 60% of poorest households rely on natural resources to provide at least part of their income. Collection and sale of thatching grass and fuel wood are the key CPR uses<sup>56</sup>. In northern Kenya, 22% of women generate part of their income from the sale of fuel wood collected from CPRs<sup>57</sup>. In a survey of 500 households in two regions in Botswana, CPRs accounted for 41% of total income for all households surveyed, and CPRs contribute over 50% of the income of the poor compared to an average of 17% for wealthy households. Lower income groups relied more heavily on CPRs for wild fruits and vegetables, firewood and building materials. However, there was an increase in reliance on CPRs for livestock grazing in the wealthier households. The poor relied on CPRs more for subsistence, while the richer households use CPRs more for commercial uses<sup>58</sup>. In Shindi, Zimbabwe, over 100 goods are derived from woodland resources. In South Africa, communities in three villages regularly use between 18 and 27 wild products and 100-300 species, excluding medicinal plants. In the studies examined, the most commonly used products are fuel wood, construction wood, wild fruits, herbs and fodder. Wild foods can provide up to 50% of household food in lean periods in Namibia. In Zimbabwe, on average, 40% of cash income for poorer households comes from wild products<sup>59</sup>.

<sup>53</sup> Osemeobo, G.J. 1991. Effects of common property resource utilisation on wildlife conservation in Nigeria. *Geo Journal*, 23(3): 241-248.

<sup>54</sup> Becker, L. forthcoming. Obstacles to decentralized forests: colonial legacy and differentiation of forest users in Mali. *Annals of the Association of American Geographers*.

<sup>55</sup> Dei, G. 1992. A Ghanaian rural community: indigenous responses to seasonal food supply cycles and the socio-environmental stresses of the 1980s. pp. 58-81. In: *Development from within: survival in rural Africa*. London: Routledge.

<sup>56</sup> Birch-Thomsen, T., Frederiksen, P., and Sano, H. O. 2001. A livelihood perspective on natural resource management and environmental change in semi-arid Tanzania. *Economic Geography*, 77(1): 41-66.

<sup>57</sup> Nduma, I., Kristjanson, P., and McPeak, J. 2001. Diversity in income-generating activities for sedentarized pastoral women in northern Kenya. *Human Organization*, 60(4): 319-325.

<sup>58</sup> Kerapeletswe, C.K. 2004. Property rights and biodiversity conservation in a common property regime. The case of Chobe and Ghanzi/Kgalagadi in Botswana. *PhD Thesis*, York: University of York. [Unpublished report].

<sup>59</sup> Shackleton, S., Shackleton, C., and Cousins, B. 2000. Re-valuing the communal lands of Southern Africa: new understanding of rural livelihoods. *Natural Resource Perspectives* 62. London: ODI.



### Box 3. Economic importance of fishery CPRs

Fisheries are central to the livelihoods of millions of poor people in developing countries, particularly those in coastal regions and on the large south Asian floodplains, but also for those living near lakes and rivers inland. Current annual global fisheries production is 132 million metric tonnes with a value of US\$58 billion at first sale and a trade value of US\$80 billion<sup>60</sup>. The trade in fish products to developed countries is worth US\$8 billion a year to developing countries. 38 million people are engaged in fisheries, particularly in Asia (84%). If associated trades are included, fisheries-related employment exceeds 150 million. Fish provide at least 30% of animal protein for 60% of people in developing countries.

## 4. CPRs and Policy

15. **CPRs have an important role to play in implementing international agreements. They are central to achieving Millennium Development Goals one (*Eradicate extreme poverty and hunger*) and seven (*Ensure environmental sustainability*).** Traditionally, CPRs have been important in climate change adaptation, and will be increasingly so under future climate variability. Much of the world's biodiversity is maintained in CPRs, so they have a central role to play in implementing the Convention on Biological Diversity (CBD). CPRs managed under traditional lifestyles maintain biodiversity in economically productive landscapes. The recent meeting of the conference of the parties to the Kyoto Protocol in Montreal underlined the importance of developing appropriate adaptation strategies. Forest CPRs are also fundamental to climate change mitigation through sequestering carbon and providing carbon-neutral energy sources.

16. The United Nations has agreed eight Millennium Development Goals to be met by 2015<sup>61</sup>. As mentioned above, the goals relevant to the management of CPRs are one and seven:

- Goal 1. Eradicate extreme poverty and hunger. Reduce by half the proportion of people living on less than a dollar a day. Reduce by half the proportion of people who suffer from hunger.
- Goal 7. Ensure environmental sustainability. Integrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources. Reduce by half the proportion of people without sustainable access to safe drinking water. Achieve significant improvement in lives of at least 100 million slum dwellers by 2020.

<sup>60</sup> Common Pool Resources and Fisheries Management (1). Key Sheet No. 1. November 2005. Fisheries Management Science Programme (FMSP) project R 8467.

<sup>61</sup> <http://www.un.org/millenniumgoals/>

17. In examining the RNRRS projects on CPRs, the synthesis study that this briefing paper is based on looked for information on the role that CPRs play in poverty alleviation and mitigation to ascertain their importance for meeting Goal 1. Many projects addressed CPR management and so can be used to develop sustainable management of CPRs, which is important for environmental sustainability and achievement of Goal 7. Moreover, water is an important CPR, and appropriate management can improve sustainable access to water resources. **Urban CPRs are an under-researched area, but they are likely to be important resources for poor people in rapidly expanding urban populations.**

18. The Convention on Biological Diversity (CBD)<sup>62</sup> has a three-fold objective: protection of biodiversity, sustainable use of biological diversity, and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources. For example, Article 8 of the convention aims to:

- Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings.
- Subject to its national legislation, respect, preserve and maintain knowledge, innovations, and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity, and promote their wider application with the approval and involvement of the holders of such knowledge, innovations, and practices, and encourage the equitable sharing of the benefits arising from the utilisation of such knowledge, innovations, and practices.

19. Many CPRs on land, in freshwater, and the sea are natural ecosystems rich in biodiversity which are utilised under traditional management systems. **Appropriate management of these CPRs can meet both the social and ecological objectives of the CBD.**

20. Global warming is a significant threat to efforts aimed at poverty reduction. Under the clean development mechanism (CDM) of the Kyoto Protocol, it is possible for funds to be made available for afforestation and reforestation projects to sequester carbon<sup>63</sup>. **Forestry CPRs, particularly those in natural forests, offer the potential for CDM projects that meet the requirements of the Kyoto Protocol while also bringing socioeconomic benefits through poverty reduction and environmental benefits of biodiversity conservation.**

## 5. CPRs and Science

21. To be effective, research on CPRs needs to be interdisciplinary, incorporating techniques and insights from both the natural and social sciences. This important

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<sup>62</sup> <http://www.biodiv.org/>

<sup>63</sup> United Nations Climate Change Conference (COP 11 and COP/MOP 1) 28 November to 9 December 2005, Palais des Congrès de Montréal. Decision -/CMP.1. Modalities and procedures for afforestation and reforestation project activities under the clean development mechanism in the first commitment period of the Kyoto Protocol.

point was recognised by Garrett Hardin in his classic paper on ‘The Tragedy of the Commons’<sup>64</sup>, in which he discussed the importance of social solutions for addressing the issue of human population growth:

*‘The class of “no technical solution problems” has members. My thesis is that the “population problem”, as conventionally conceived, is a member of this class. How it is conventionally conceived needs some comment. It is fair to say that most people who anguish over the population problem are trying to find a way to avoid the evils of overpopulation without relinquishing any of the privileges they now enjoy. They think that farming the seas or developing new strains of wheat will solve the problem - technologically. I try to show here that the solution they seek cannot be found.’*

22. Hardin then goes on to use the example of open access property rights to demonstrate the tragedy of the commons on a grazing range:

*‘...the rational herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd. And another... But this is the conclusion reached by each and every rational herdsman sharing a commons. Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit - in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.’*

23. The lesson here is that although technical innovations may exist that are useful for poverty alleviation, such as the application of biotechnology to produce drought resistant crop varieties and livestock vaccines, these innovations may not contribute to achieving the Millennium Development Goals (MDGs), or even be detrimental, unless introduced through an appropriate social context.

24. Open access arrangements over CPRs, as envisaged by Hardin, are rare. In practice they are governed by a wide range of property rights of varying complexities (see Box 1). Understanding these governance arrangements and developing techniques for mediating the interactions between the many stakeholders who use CPRs has been a major component of the successful RNRRS research programme.

25. The importance of combining both natural and social sciences in interdisciplinary research was recognised in the Science and Technology Select Committee report on ‘The Use of Science in UK International Development Policy’. **The report stated that conflicts between proponents of social and natural sciences are artificial dichotomies, and that ‘natural and social science both have key roles to play alongside governance considerations’** (p. 35).

## 6. Management of CPRs

26. CPRs often have multiple users who are potentially competing for the same, or similar, resources. Their management can carry high transactions costs. Transactions costs are the costs of gathering information, reaching agreements, monitoring and

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<sup>64</sup> ‘The Tragedy of the Commons,’ Garrett Hardin, *Science*, 162(1968):1243-1248.

enforcing the agreements. Transactions costs are reduced by mechanisms that increase co-operation and trust<sup>65</sup>. Although this may seem simple and self-evident, in practice co-operation and trust are hard to achieve. The result is that conflict is often apparent in the management of CPRs. The resources can be alienated from access by poor people through top-down State intervention, or they can be subject to capture by richer more powerful members of society. The aim of successful CPR management is to allow sustainable and equitable use of the natural resources that meets the needs of all users and, in particular, provides benefits for the least advantaged.

## **7. Threats to CPRs**

27. CPRs are traditionally managed under customary social arrangements. Under these flexible systems, rights of access to the natural resources are regulated by the community. However, CPRs are often alienated from community control (see Box 4). For example, large areas of land have been alienated by the State for forest and game reserves, such as forest reserves in India and national parks in eastern Africa. Management and access is then regulated by the State rather than the local community, and rights to harvest and control natural resources are lost.

28. Privatisation of land tenure and a switch from customary to codified law are having a major effect on the access and use of CPRs. Elite capture is another concern as richer people capture control of CPRs from poorer people.

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<sup>65</sup> North, D.C. 1990. *Institutions, institutional change and economic performance*. Cambridge University Press, Cambridge.

**Box 4. Economic importance of CPRs in Asia**

In south India CPRs contribute between 15 and 23% of poor people's income and contribute to improving village equity. The income from CPRs is higher than that generated through anti-poverty programmes in many areas. Poor households are losing access to CPRs (access has declined by 26-50% between the mid 1950s and 1980s). CPRs may be the only non-human asset that the landless have at their disposal<sup>66</sup>. In Rajasthan and Madhya Pradesh, there is greater reliance on CPRs for grazing, fuel wood, fodder and food for small farmers and the landless than for large farmers. Privatisation helps the rich more than the poor. Households already owning above 15 hectares of land acquired 63% of newly privatised CPRs, often with the most fertile soils<sup>67</sup>. In West Bengal, 10-15% of poor households' income is from CPRs, becoming more important the poorer the household. Fodder and fuel are the most important CPRs accessed by the poor, and most collection is made by women and girls. Modernisation is excluding the poor from CPRs<sup>68</sup>. In Gujarat, 70% of fuel and 55% of fodder collected from CPRs was by poor households. There has been a gradual decline in CPRs over the last 30 years in the region through privatisation, with conflict over CPRs increasing in times of crisis<sup>69</sup>. In Karnataka, CPRs make up 10% of gross income of poor households. The area of CPRs has declined by 33% over the last 20 years<sup>70</sup>.

**8. Case studies**

29. We reviewed 43 RNRRS projects across five natural resources research programmes. Summaries of the projects and consultation process carried out are available in the Final Technical Report of R8501 Common Pool Resources Synthesis Study. Here, we discuss four examples to illustrate some of the points discussed in previous sections.

***Rainwater harvesting***

30. The work of DFID's RNRRS on rainwater harvesting provides an excellent example of a situation where **technical solutions aimed at reducing poverty require appropriate local management institutions to be in place before they can be effective.**

<sup>66</sup>Jodha, N.S. 1986. Common property resources and rural poor in dry regions of India. *Economic and Political Weekly*, 31(27): 1169-1181.

Dasgupta, P. 1998. The Economics of Poverty in Poor Countries. *Scand. J. of Economics*, 100(1): 41-68.

<sup>67</sup>Jodha, N.S. 1985. Population growth and the decline of common property resources in Rajasthan, India. *Population and Development Review*, 11(2): 247-264.

<sup>68</sup>Beck, T. and Ghosh, M. 2000. Common property resources and the poor. Findings from West Bengal. *Economic and Political Weekly*, 35(3): 147-153; Ghosh, M.G. 1998. *Natural and social resource use and the poor in rural West Bengal*. Santiniketan: Visva-Bharati; Beck, T. 1998.

Excluding the poor from their rights: the case of natural resources in West Bengal. *Presented at 'Crossing Boundaries,' the seventh annual conference of the International Association for the Study of Common Property*, Vancouver, British Columbia, Canada, June 10-14, 1998;

<sup>69</sup>Chen, M. 1991. *Coping with seasonality and drought*. New Delhi: Sage.

<sup>70</sup>Pasha, S. 1992. CPRs and rural poor. A micro level analysis. *Economic and Political Weekly*, November 14.

31. Water is a critical CPR in semi-arid Tanzania, which is home to the majority of Tanzania's poor<sup>71</sup>. Rainfall is a limiting factor in agricultural production in most semi-arid regions, with most national planners considering them as marginal for agriculture. Despite this, the semi-arid region of Tanzania is the biggest producer of crops such as maize, rice, and cotton. Efficient rainwater harvesting contributes to the security and intensification of agricultural production in semi-arid regions, and so helps reduce people's vulnerability to erratic and variable rainfall patterns, which are likely to become more variable due to climate change. Rainwater harvesting therefore has enormous potential for reducing poverty and hunger. It also realises environmental benefits by reducing pressure for land clearance at the same time as reducing conflicts between agricultural and pastoral communities over access to water. Technical solutions researched by the RNRRS, in particular the development of the 'Parched-Thirst model'<sup>72</sup> applied in Tanzania<sup>73</sup>, offer enormous potential and have been taken up by the Tanzanian government at policy level<sup>74</sup>.

32. Nevertheless, an important insight provided by this suite of projects is the fact that technical solutions enabling rainwater harvesting would not benefit poor people unless attention was given to the resulting need for changes in local management institutions. Adoption of rainwater harvesting leads to a need for change in access to CPRs such as runoff, rangelands, rivers and channels. In order to ensure that the poor do not become marginalised and find their access to these CPRs removed or restricted, uptake promotion of rainwater harvesting must be accompanied by changes in the management institutions that govern use of these CPRs. Indeed, NRSP Project R8116 found that existing institutional mechanisms in semi-arid Tanzania limited poor and marginal groups' access to agriculturally relevant CPRs. For example, the rich were more likely to have adequate access to runoff (approx. 50%) compared to the poor (approx. 30%). Overall, the results of the study found that there was a general trend towards weaker groups obtaining few, if any, benefits from rainwater harvesting.

33. The following specific institutional weaknesses were identified:

- Inequality in membership of CPR management committees between different social groups.
- Lack of organisation or planning above the village level, and lack of clear links between village and higher administrative levels, including national policy and strategies.

The project addressed institutional weaknesses through:

- The formation of catchment level and village level autonomous committees with improved representation of women and the young.
- Improved CPR tenure systems and management through simplified procedures for land leases and capacity building in land policy and laws.
- Guidelines for CPR management plans and capacity building for local stakeholders.

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<sup>71</sup>NRSP project R7857.

<sup>72</sup>NRSP project R6758, R7888, R7949, R8088.

<sup>73</sup>NRSP project R8115.

<sup>74</sup>NRSP project R8116.

34. A key resource arising from the project was a six-step planning guide for the development of small-scale rainwater harvesting projects at the catchment level, aimed at facilitating improved institutional robustness<sup>75</sup>.

### *Markets for carbon*

35. The work of DFID's RNRRS on creating markets for carbon sequestered in forest CPRs illustrates how **global environmental objectives can be linked with ensuring the livelihoods of poor people and providing the poor with access to new markets, as well as highlighting the potential dangers of such macro-economic approaches to poverty reduction.**

36. Many poor people rely on forest CPRs for non-timber products such as fuel wood, food (e.g. fungi and game), and medicine. Forest CPRs are, however, constantly under pressure to be placed under State control or privatised because of their high timber value. Two RNRRS projects (FRP R6320 and R7374) have looked at how the creation of markets for carbon under the Kyoto Protocol could provide a contribution to rural livelihoods in which forests and their associated non-timber products remain intact. Potentially this is a 'win-win' approach, with both environmental and social gains. The concern, however, is that it is more efficient to create large plantations specifically geared towards carbon sequestration. This approach may have negative effects on the livelihoods of poor people, as exotic plantations are unlikely to yield the kind of non-timber products that accrue in native forests. By introducing appropriate training in sustainable-yield forest management together with institutional development and the introduction of appropriate planning methodologies, these projects successfully implemented carbon sequestration activities at a village level in Mexico. It also demonstrates the possibility of a global to local benefit transfer if appropriate mechanisms are in place.

### *Self-recruiting species in aquaculture*

37. The work of DFID's RNRRS on self-recruiting species in aquaculture demonstrates how **poor people might become excluded from natural resources as a result of privatisation**, in this case privatisation of fish ponds. At the same time, the innovative application of a combination of natural and social science techniques has demonstrated that **co-operative management regimes that enable poor people access to non-commercial species can provide 'win-win' outcomes in terms of poverty reduction, commercial production and biodiversity.**

38. Fish ponds offer the potential for bringing much needed protein to the poor – helping with health and income. However, the technical innovation does not help poor people unless the appropriate property rights are in place. Because poor people cannot afford the infrastructure needed for stocked aquaculture, fish ponds often tend to be privately owned, with poor people relying on a harvest of aquatic animals from community water bodies. During dry times of year, however, they are forced to rely instead on privately owned ponds and rice fields. Under suitable agreements they can still have access to CPRs in the ponds through harvesting self-recruiting species

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<sup>75</sup> Hatibu, N. and Mahoo, H.F. (2000) Rainwater harvesting for natural resources management. A planning guide for Tanzania. Sida Regional Land Management Unit, Nairobi. (Available via project R8116 at [www.nrsp.co.uk](http://www.nrsp.co.uk).)

(SRS)<sup>76</sup>. SRS are aquatic animals that can be harvested sustainably from a farmer-managed system without regular stocking. They include species such as fish, prawns, crabs, and snails that exist in managed ponds, but do not represent the species of commercial interest to large pond owners. SRS are critical for poor people, for both home consumption and sale. Their importance varies seasonally, with the catch in open-access water bodies, including flooded rice fields, critical during the flood period, but shifting to an emphasis on ponds, ditches and as a by-catch from commercially operated ponds in the dry season. Conflicts arise between the interests of commercial pond owners who wish to pursue mono-culture fish production to the exclusion of ‘wild’ SRS, and poor people that rely on SRS as a CPR from private ponds. Research showed that SRS enhance productivity in commercially stocked ponds. Maintaining high levels of biodiversity in managed ponds by allowing sustained presence of SRS was therefore demonstrated to result in positive economic returns for all community members, including poor, CPR-reliant people, commercial pond owners, and the environment.

### *Community wildlife conservation in Kenya*

39. The work of DFID’s RNRRS on wildlife conservation in Kenya highlights how privatisation of land (in this case for game reserves and related tourism) may not benefit poor people in surrounding areas. **Without the appropriate institutions in place, negative impacts on poor people’s food security and income can result** due to complex trade-offs between income from tourism and impacts such as crop damage, livestock, and human losses that result from increased volume of game and alienation of natural resources.

40. NRSP Project R7150 looked at the interactions between wildlife conservation, tourism and pastoralism in Kenya. At first glance the potential for community wildlife conservation schemes to contribute to poverty alleviation is quite high. This project demonstrated, however, that actual benefits are often not high enough to compensate for the losses experienced by local land users such as crop damage, livestock, and human losses. Although tourism income for countries such as Kenya can be considerable, few of these financial benefits reach local levels. Wildlife conservation schemes also have the potential for conflict with local livelihood strategies, especially agro-pastoral and agricultural livelihoods, although they may be more compatible with pastoral lifestyles.

The key lessons from this project are:

- Community wildlife conservation initiatives driven by tourism need to be in areas of high-income generation potential.
- There needs to be capacity building and accountability in local institutions, accompanied by dialogue and strong links between communities and local/national government structures.
- Without the conditions above, wildlife is likely to have a negative impact on food security and incomes.

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<sup>76</sup> AFGRP R7917



As a result of its findings, the project developed the following criteria for overcoming livelihood/environment conflicts in community wildlife management:

- Potential for cash income generation is high
- Intervention tailored to local situation
- Improved institutional links and capacity
- Increased local participation
- Inter-sectoral policy coordination

## 9. Conclusions

41. The aim of this briefing paper is to make policy-makers aware of the impact on CPRs of policies that promote: alienation of natural resources for nature conservation; privatisation of natural resources to protect commercial and individual interests; and macro-economic approaches to poverty reduction that ignore the need to ensure poor people's access to natural resources. There has been substantial research carried out on CPRs by the DFID RNRRS programme.

42. Poor people use CPRs for their own subsistence and as a means of providing livelihoods and access to new markets. Research on CPRs is fundamental to achieving the Millennium Development Goals, particularly goals one (*Eradicate extreme poverty and hunger*) and seven (*Ensure environmental sustainability*). As well as providing an essential subsistence and income base for the poorest and most marginalised social groups, CPRs have also often been observed to support access to new market opportunities among these groups. An important area of future research is to examine the role that CPRs play in poverty alleviation by using a welfare function that includes both social and economic indicators of poverty. Urban CPRs are an under-researched area, but they are likely to be important resources for poor people in rapidly expanding urban populations.

43. Appropriate management of CPRs can help countries meet both environmental and social targets of international conventions, such as the Convention on Biological Diversity. Forestry CPRs, particularly those in natural forests, offer the potential for CDM projects that meet the requirements of the Kyoto Protocol while also bringing socioeconomic benefits through poverty reduction and environmental benefits of biodiversity conservation. Global environmental objectives can be linked with ensuring the livelihoods of poor people and providing the poor with access to new markets. Co-operative management regimes that enable poor people access to non-commercial species can provide 'win-win' outcomes in terms of poverty reduction, commercial production, and biodiversity.

44. The trend towards privatisation is an important area for future research because it may result in poor people losing their livelihoods by being excluded from CPRs. Poor people might become excluded from natural resources as a result of privatisation. The ideal property right may, therefore, be one of co-operative communal management that allows equitable access to defined groups within the community and ensures usage patterns that do not degrade or destroy the resource. Without the appropriate institutions in place, negative impacts on poor people's food security and income can result. There is widespread concern amongst researchers and practitioners that macro-economic policy approaches to reducing poverty will prove ineffective if sustainable CPR management regimes are not in place.

45. Technical solutions aimed at reducing poverty require appropriate local management institutions to be in place before they can be effective. Conflicts between proponents of social and natural sciences are artificial dichotomies, and both natural and social science both have key roles to play alongside governance considerations.