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Policies, institutions and interventions for sustainable land management in Amazonia

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List of Acronyms

BASA	Banco do Amazônia (Bank of Amazonia)
CAP	Centro Agropecuário (Agro-Livestock Centre)
CNS	Conselho Nacional dos Seringueiros (Rubber-Tappers National Council)
COPATIRÔ	Cooperativa de Serviço de Apoio ao Desenvolvimento Humano Atiorô (Co-operative for Services and Support to Human Development Atiorô).
EMATER	Empresa de Assistência Técnica e Extensão Rural (Technical Assistance and Rural Extension Enterprise)
FETAGRI	Federação dos Trabalhadores na Agricultura do Estado do Pará (Rural Workers Federation of Pará State)
FNO	Fundo Constitucional do Norte (Constitutional Fund for the North)
IBAMA	Instituto Brasileiro de Meio Ambiente e Recursos Renováveis (Brazilian Institute of the Environment and Renewable Resources)
IMAZON	Instituto do Homem e Meio Ambiente na Amazônia (Institute of the Man and the Environment of Amazonia)
IMF	International Monetary Fund
INCRA	Instituto Nacional de Colonização e Reforma Agrária (National Institute for Colonisation and Agrarian Reform)
LAET	Laboratório Agro-ecológico da Transamazônica (Agro-ecological Laboratory of the Transamazonia)
LASAT	Laboratório Sócio-Agrônomo do Tocantins (Socio-Agronomic Laboratory of the Tocantins)
MPST	Movimento pela Salvação da Transamazônica (Movement for the Survival of the Transamazon)
MST	Movimento dos Trabalhadores Rurais Sem Terra (Landless Rural Workers Movement)
NAEA	Núcleo de Altos Estudos da Amazônia (Nucleus of Higher Amazonian Studies)
NGO	Non Governmental Organisation
NRSP	Natural Resources Systems Programme
ODG	Overseas Development Group
PIC	Projeto Integrado de Colonização (Integrated Colonisation Project)
PP-G7	Pilot Program for the Brazilian Rainforest
PRONAF	Programa Nacional de Agricultura Familiar (National Programme for Family Agriculture)
SECTAM	Secretaria de Ciência, Tecnologia e Meio Ambiente (Secretary for Science, Technology and the Environment)
SUDAM	Superintendência do Desenvolvimento da Amazônia (Superintendence for the Development of Amazonia)
UEA	University of East Anglia
UFPA	Universidade Federal do Pará (University of Pará)

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Policies, institutions and interventions for sustainable land management in Amazonia

1. Executive Summary

Interventions by government, international donors and NGOs have apparently failed to stem increasing poverty and environmental destruction at the forest frontier. This research sought to understand policy processes and identify linkages between recent agrarian and environmental policies and land use dynamics and livelihood security in Amazonia. It aimed to address three aspects of this development problem: first, the lack of analysis of recent interventions; second, the lack of co-ordination and integration between agrarian and environmental policy; and third the apparent absence of effective participation by civil society in policy debates.

This one-year project builds on findings from another DFID-NRSP funded project, 'Modelling the sustainability of frontier farming at the forest fringe' (R6675) which analysed the dynamics of frontier farming and environmental and agricultural sustainability, working with farmers and organisations in one region of Para State, Marabá. The objective is to investigate how policy could support small farmers, or family farmers, and less environmentally destructive land use practices. It focuses on two recent but very significant policy innovations in Brazil, the PRONAF, or Programme to Support Family Agriculture, and the Environmental Crimes Law.

The project developed a collaborative relationship between some key Amazonian research organisations, Laboratório Agro-ecológico da Transamazônica, Laboratório Sócio-Agrônomo do Tocantins, Instituto do Homem e Meio Ambiente na Amazônia, and Cooperativa de Serviço de Apoio ao Desenvolvimento Humano Atiorô, as well as the Overseas Development Group at the University of East Anglia. Data from three study sites in the region, Marabá, Altamira and Conceição do Araguaia were compiled and synthesised. These sites provide a range of ecological, economic and social conditions and are characterised by different colonisation patterns and farming systems. Secondary data came from studies previously carried out by the collaborating institutions, complemented and augmented by information collected through a series of interviews and workshops.

The policy process is very different for the two policies. Civil society and farmers' organisations have participated in the development of PRONAF more than in environmental policy. In a crude generalisation, the PRONAF policy process is more bottom-up, whereas Environmental Crimes Law is distinctly top-down, with international agencies influential. A key instrument of PRONAF, credit, has reached farmers in the region. In some areas, this has led to further social differentiation and perhaps increased pasture at the expense of forest. There is little evidence that fines and monitoring under the Environmental Crimes Law are effectively implemented. Overall there is weak vertical integration, and a virtual absence of vertical integration between agrarian and environmental policies.

The project has started a process of dialogue between key policy actors, from state and civil society. Civil society actors appear more ready to engage in this dialogue and have initiated meetings and discussions about how to improve the implementation and

effectiveness of policy instruments, such as the technical packages linked to credit under the PRONAF, in order to meet environmental and development objectives. The research process itself has not only identified spaces for greater inclusion of a wider range of actors in policy dialogue, but it has also opened some of these spaces to previously marginalized and unheard voices within just a few months.

2. Background

Rapid migration to and development of the forest frontier of Brazilian Amazonia since the early 1960s have resulted in increasing environmental degradation, without bringing about a significant decrease in poverty. Since the early 1970s government policies have been identified as a main driving force for the unsustainable patterns of Amazonia colonisation and high rates of deforestation (Mahar, 1989; Schneider, 1995; Binswanger, 1991; Mahar and Schneider, 1994). Government has been seen to provide perverse incentives for destructive environmental management and until recently has made little effort to support the plight of marginalized migrant farmers in establishing secure, sustainable livelihoods in the region.

In the 1960s and 1970s Brazil was under a military rule, and there was little space for civil society to participate in policy making. Despite the democratisation process launched in mid 1980s, few policies and government interventions have been adopted that effectively deal with deforestation and other forms of environmental degradation, or counter the economic forces that promote transience of the poor migrant farmers now living in the region. Government policies have been found to be poorly integrated, often implemented by different agencies acting in isolation, and often directly contradictory and in conflict. On the one hand, agrarian policies have supported agricultural and rural development and often favour large farm sector, on the other, environmental policy has focused on forests conservation and traditional populations. The linkages and connectedness of various economic activities or forms of land use have rarely been taken into account in policy formulation and implementation (Cavalcanti, 2000).

Furthermore these problems of policy formulation and implementation are exacerbated because, despite the geopolitical importance of Amazonia, the central government does not acknowledge its environmental and social diversity and thus many policy instruments are not adapted to the local realities. In addition, Amazonia is still regarded as of secondary importance for the country where the Southern States are economically and politically more powerful, thus biasing the policy agenda.

Analyses of policy making often assume a simplistic linear model with a rational and technocratic sequential progression from formulation to implementation to impacts. However we acknowledge that policy rarely follows this sequence and is in reality a far messier, irregular and dynamic, with a multitude of actors and interests. Policy processes are thus the articulation of relationships between authorities, bureaucrats, various forms of expertise and broader civil society (Keeley and Scoones, 1999). This articulation is played out very differently for agrarian and environmental policies in Brazil, and has changed significantly over the past four decades. For example, the Church and farmers unions have traditionally formed social movements and have been at centre stage of public action, whilst international organisations including environmental groups and multi-lateral agencies are increasingly influential, and the Landless Movement (MST) has becoming more powerful (Houtzager, 2001; Kolk, 1998; Hammond, 1999). Although Amazonian civil society is increasing able to influence the policy process in order to bring some benefits to poorer sections of society and to the environment, it was not clear what mechanisms could be adopted to strengthen this participation. Furthermore, the policy-making process and the information needed for organised civil society groups to propose alternatives, such as the impacts of different policy on livelihoods or the environment, are not readily

available. For example, the current credit policy for smallholders, the result of campaigns by farmers', despite producing economic gains for many families, has apparently increased pasture establishment in the region. Thus policy processes are often characterised by the recurrent themes outlined by Mayers and Bass (1999): conflicting interests, murky practices and muddling through. This research seeks to clarify and better understand the role of different actors in the policy process and to identify the opportunities for wider and more meaningful participation by civil society actors in those processes for agrarian and environmental policies.

This research analyses the impact of current policies on one of the most important segments of the Amazonian society, the colonists. Most of the 600,000 small producers in Amazonia are colonists (Homma, 1998). They are often perceived as victims of governmental policies and at the same time important agents of environmental degradation. This research fills a significant gap, in providing comparative analysis across regions, analysing the impacts of similar policies in distinct social, economic and ecological contexts. It brings together data and findings from various studies focused on small areas or regions, providing policy-relevant information. Furthermore, working in close collaboration with institutions based in the three regions studied, it was possible to interview key actors in policy-making, breaking down the decision making processes, and understanding the role of each particular set of actors and listening from them how they perceive their participation on the policy process.

Research sites

The research was conducted in three regions of the State of Pará, which were chosen because they have a different history of occupation or settlement processes, and have experienced the implementation of public policies since the 1970s in different ways. These sites are Conceição do Araguaia, Marabá, and Altamira and their location is shown in Figure 1. Table 1 summarises the key land use characteristics and evolution of these three sites

Located in the extreme southeast of Pará, ***Conceição do Araguaia*** is in the transition between the *cerrado* (savannah) and the Amazon forest ecosystems. The economy of Conceição was based on the extractivism until the 1960s. Its colonisation intensified with the opening of the Belém-Brasilia Highway in early 1960s, with the arrival of farmers from central southern Brazil who settled unoccupied lands. This proximity to the main routes linking the region with the South of the country was the key factor in the establishment of large farming enterprises, encouraged by fiscal incentives from SUDAM. From the 1980s, continued migration to the region and the bankruptcy of the projects supported by SUDAM, resulted in settlement on the remaining forested areas of large farms. These occupations often led to violent conflicts between landowners and farmers. Ranching is the main activity for both small and large farmers, and is supported by agro-industrial developments including dairy companies, beef and leather processors and dealers, exporting their products to the central southern region. Many small and medium farmers living in the savannah areas produce pineapple. The municipality of Floresta, until recently part of Conceição do Araguaia *município*, is the largest producer and exporter of pineapple in Brazil. Soya has been introduced in the region, as part of the package that follows the construction and other initiatives around the Tocantins-Araguaia Hidroway, linking the cerrado soya belt to the coast at São Luiz.

Marabá is a frontier area covering 30,000 km² with 300,000 inhabitants. Until the 1960s the economy was based on extractivism (first latex and later Brazil nuts and diamonds). The region was totally transformed with the opening of roads, particularly the Transamazônica and the Belém-Brasília highways, linking the region to rest of the country, and by the official colonisation programme alongside the Transamazônica corridor project. In the 1980s, large mining and infrastructure projects attracted thousands of families to the region. Many of these families remained there, occupying Brazil nut groves, often with violent conflicts. This led to a certain agrarian de-concentration and beginning of the consolidation of a family farming sector of considerable economic importance. Brazil nut groves not occupied by colonists were transformed into cattle ranches. Land occupation continued, initially in slower pace, but became more intense at the end of the 1990s. Small farmers were better organised with greater power and a more effective voice in demanding credit and infrastructure.

Located at the west of Pará state, in *Altamira* the basis of livelihood for most inhabitants was riverine agriculture until construction of the Transamazônica highway. In Altamira the official colonisation alongside the highway corridor was more intense than in other regions. Of the 7700 families effectively installed in the three Integrated Settlement Projects (PICs Marabá, Altamira and Itaibuba), 3600 had been in the PIC of Altamira. Altamira received a larger number of migrants from the south who had more initial capital than the farmers from Northeast states and were also more experienced with market-orientated agriculture. The region generally has more fertile land and stronger local economy.



● Studied regions 1- Conceição, 2- Marabá, 3- Altamira

Figure 1: Location of the Research Sites

Table 1: Land use characteristics and evolution in the three study sites

Period	Conceição do Araguaia			Marabá			Altamira
	Key factors	Family farm	The 'Fazendas'	Key Factors	Family farms	Large farms	Key factors
Before mid 1960s	Free access to land (<i>Terra livres</i>)	Subsistence agriculture	Very extensive cattle ranching	Existence of large areas of forest	Subsistence agriculture and extractivism	Large 'aforamento' estates for Brazil-nut harvesting	Development along Xingu river
1960s and 1970s	Tax incentives for largescale farming and ranching	Slash and burn agriculture and cattle ranching. Migrants from the centre and northeast of Brazil.	Agribusiness enterprises from the central-south, mainly for ranching, plus some sugar cane production.	Opening of roads, official settlement schemes	Slash and burn agriculture plus livestock. Migrants from the centre and northeast of Brazil.	Cattle farms in 'castanhais' areas	Transamazônica highway and official settlement project, subsidised credit for rice, cattle and perennial crops
1980s	Economic failure of large projects. Continuous migration: 'gold fever'	Slash and burn agriculture, practised in the forested areas of the insolvent projects	Cattle farms	Large government projects and infrastructure development	Migrants mainly from Maranhão. Slash and burn agriculture and cattle.	Disappearance of the castanhais. Medium (land re-concentration) and large ranches	High prices for perennial crops. End of subsidized credit and reduction in State services
Early 1990s	Less migration and less productive land available	Slash and burn agriculture and cattle, pineapple in cerrado by more capitalised farmers.	Intensification of the cattle production	Land concentration	Migrants from Maranhão and other Northeast states. Slash and burn agriculture and cattle. Formation of a dairy basin.	Intensification of cattle ranching in areas close to urban centres	End of subsidized credit and reduction in State services
Late 1990s	Intensification of occupations and land adjudication	Specialization in dairying. New occupations.	Large and medium size ranches specialising in fattening. Soybean and cotton starts	Intensification of occupations and land adjudication	Increase in internal migration. Intensification of the cattle ranching close to urban centres. Consolidation of a small dairy basin	Ranches of diverse sizes in the entire region. Internal migration.	State subsidies available FNO credit scheme. Emancipation of some municipalities. Logging roads developed

Policies analysed

The research focused on two recent and important policy development on agrarian and environmental sectors; PRONAF, the National Programme to Strengthen Family Farming, and the Environmental Crimes Law.

As an agrarian policy, PRONAF, launched in 1996, is an obvious choice and currently it is the most important government programme in this area. It represents, for the first time in the history of the public policies for rural areas, a set of measures directed to family agriculture¹, including mechanisms such as credit for agricultural production, infrastructure and training. PRONAF incorporated existing mechanisms for

¹ Family farm of family agriculture is a translation of the Brazilian term. It is distinguished from large commercial farming sector and ranching, but the term 'smallholder' would be a misnomer given the size of some family farms even if relatively small areas are under cultivation.

implementation of an agrarian policy, but places them under one unified programme that involves the participation of the federal, state and municipal governments in partnership with the civil society. For some analysts, the programme represents a paradigm shift and a new model that identifies the family farm as the engine of development (Silva, 1999). For others it represents the subordination of President Cardoso's government to the IMF and the World Bank, and an attempt to fit Brazilian agrarian policy with neo-liberal ideology and the principles of the free market (Vilela, 1997; Lopes, 2000). Thus it represents an excellent case study to examine the participation of civil society in the development of public politics, and the articulation of a range of state and non-state actors, including commerce and banking in the policy process.

The Environmental Crimes Law and the decree regulating it are the major policies analysed in the environmental area. These are the two main federal documents regulating natural resources use and defining the punishment applicable to violations of environmental regulations. This law brings together and attempts to rationalise a number of other previously existing laws and seeks to regulate what characterizes environmental misuse in a single document. It establishes serious penalties for illegal deforestation and transport of forest products (wood, coal) without authorization. Furthermore it stipulates that a portion of fines collected should go towards a national environmental fund. Influenced by the 'Polluter Pays' principle, it represents an approach which employs market mechanisms to regulate land use as recommended by international agencies such as the World Bank and Inter-American Development Bank. Specialists state that it is modern and advanced law that seeks to promote quality of life and human dignity (Sales, 2001).

3. Project Purpose

The purpose of the project was to increase understanding of the relationship between policy processes and sustainable livelihood impacts for smallholder farmers in the NRSP-FAI target area in Eastern Amazonia by key policy makers. There are a number of objectives. First, the research process will help to initiate a dialogue between key policy actors, including government and NGOs. Second, that this dialogue will facilitate better integration of agrarian and environmental policy objectives and a discussion of the overlaps and conflicts and possible synergistic impacts of policy implementation. Third, that the research will identify spaces and opportunities to enhance the inclusion of civil society groups in the policy process.

4. Outputs

Table 2 summarises the outputs from the project as specified in the Logframe. The research findings are presented on the Annexes A, B and C.

Table 2: Summary of Project Outputs

Outputs	Achievement
1. Enhanced understanding of the interactions between recent environmental and agrarian	Complete: Detailed in Annexes A, B, C, D and Literature Review.

policies and land use and livelihoods at different locations.	
2. Processes of policy formulation including links between national, state and local level policies and institutions, especially the role of civil society, mapped and used by research teams as an analytical and conceptual tool for policy discussions with target actors and institutions	Annexes A and B.
3. Active engagement with, and contribution to, the debate on impacts of environment and agrarian policy on frontier dynamics under different conditions with key stakeholders and policy actors through the research process.	Achieved through interviews and workshops (see Annexes E and F)

4.1 Enhanced understanding of the interactions between recent environmental and agrarian policies and land use and livelihoods at different locations.

This was achieved through the analysis of the policy processes for the two policy innovations. Much ‘grey’ literature was reviewed and data collected in the three research sites were synthesised. We also conducted a series of interviews and discussions in workshops in the localities and regionally. Much of the information was therefore of a qualitative nature. We have undertaken quantitative analysis of data where this is possible but have backed up the findings with the observations of key informants. The policies appear to have had different impacts in different regions but more importantly their impacts have been socially differentiated. There are some implications for land use strategies and particularly the impact of access to credit on livestock numbers. However we acknowledge that it is extremely difficult to separate out the impacts of policy implementation from the impacts of other changes in economy and society. Certain instruments, for example implementation of fines, or access to credit more directly affect livelihoods and land use practices than other instruments, for example training. However the results indicate that PRONAF potentially has brought about changes to both livelihoods and farming practices as outlined in the Annexes, whereas little evidence of impacts of the Environmental Crimes Law could be found.

4.2 Processes of policy formulation including links between national, state and local level policies and institutions, especially the role of civil society, mapped and used by research teams as an analytical and conceptual tool for policy discussions with target actors and institutions.

Interviews and workshops provided the main source of data to address this issue. Institutional mapping was used as a research tool to explore with different policy actors their understanding of the policy process. They are also presented to illustrate the interactions between policy actors, and to help identify the scope for ‘opening’ up policy processes to wider participation by civil society. They reveal very different policy processes for PRONAF and the Environmental Crimes Law. The findings indicate that there are very few interactions between the agrarian and environmental policies; different actors are involved in the policy processes. This confirms the lack of

horizontal integration. Vertical integration, including the effective participation of local civil society differed for the policies, with local farmers' organisations playing a more effective role in the formulation of PRONAF. There were significant differences in the implementation of the two policies in the three sites; overall environmental crimes law had been very poorly implemented and this could be traced to institutional weaknesses on behalf of the main state implementing agency.

4.3. Active engagement with, and contribution to, the debate on impacts of environment and agrarian policy on frontier dynamics under different conditions with key stakeholders and policy actors through the research process

This was successfully achieved through the research process, the workshops and dissemination. Overall, government actors were more difficult to engage. However, the project has resulted in increased dialogue between farmers' groups and other civil society groups including regional banks.

5. Research Activities

Table 3 summarises the activities specified in the project logframe and indicates whether these activities have been successfully completed.

One important achievement which is not one of the specified activities, is the effective collaboration between the research institutes institutions: LASAT/NEAF (Marabá), LAET/NEAF (Altamira), NEAF co-ordination (Belém) and AMAZON (Belém, focusing on environmental policies). Later, COPATIORÔ, an NGO based in Conceição do Araguaia, joined the research team.

Table 3: Summary of Project Activities

Project Activities	Achievements
<p>1.1 Literature on recent agrarian and environmental policies brought together, synthesised and disseminated.</p> <p>1.2 Using evidence from three sites, interactions between different policies and their effects on land use patterns and livelihood security documented and assessed for conflict or complementarity.</p>	<p>Literature brought together and synthesised in Portuguese and English. Dissemination only of the Portuguese version.</p> <p>Research on three sites and analyse of interactions of policies on land use and livelihoods completed. Conflict between agrarian and environmental policies were assessed. Findings discussed and presented in Annexes A and B</p>
<p>2.1 Key actors, institutions and the horizontal and vertical linkages analysed and mapped.</p> <p>2.2 Opportunities for greater co-ordination and inclusiveness identified.</p>	<p>Complete. Findings discussed and presented in Annexes A and B</p> <p>Opportunities for greater co-ordination and inclusiveness were identified. Some initiatives were launched as outcome of workshops (see Contribution of Outputs below).</p>
<p>3.1 Convene three local and one regional workshop for the key actors and institutions identified to discuss scope for action based on the opportunities identified.</p> <p>3.2 Broad dissemination of research findings at seminar for DFID, and through academic papers and presentations.</p>	<p>All the workshops were completed with good participation of targeted institutions (Annex E). Two more workshops have been also organised (see Section 5.3).</p> <p>On going. Meetings with DFID will be held in March and research findings will be disseminated at Society for Latin American Studies Conference and other major academic fora. Further publications are also planned. See dissemination under Section 8 and Annexes B, D, G, H.</p>

5.1 Literature review and analysis of policies impacts on three sites

A review of the literature on agrarian, environmental and regional development policies in Amazonia since the 1950s was completed. Information for the three research sites was gathered and analysed, focussing on the evolution of farming systems and how policies were implemented in each of the regions and their impacts. A document was produced in Portuguese and disseminated to the collaborators institutions. An English version was drafted.

5.2 Institutional mapping and analysis

The institutional mapping was undertaken linking information coming from the literature, collaborators knowledge and from 44 interviews taken among rural union and local associations leaders, NGO's representatives as well as officers of public agencies

such as IBAMA, INCRA, and banks. Interviews were conducted in the three sites and additionally in Belém and Brasília. These interviews sought to learn how people evaluated the implementation of the two policies, their perceptions of the impacts, and how they view their participation and that of other actors in the policy-making and policy implementation process. The findings allowed the identification of key actors and their importance in policy processes and the identification of opportunities for greater participation of farmers' organisations and co-ordination among different actors. A list of interviewees can be found in Annex F and some of the findings of the institutional mapping are presented in Annex A and B.

5.3 Workshops and dissemination

At each research site a workshop was organised. The results from previous stages of research were presented and discussed. Discussions focussed on what can be done in order for the policies to be better adapted to the local context, and for implementation to be less contradictory, particularly on how to include environmental conservation concerns in policy-making, and how civil society participation can be enhanced.

For the regional workshops (organised in Redenção, Marabá and Altamira) the target participants were farmers' leaders, local environmental and development NGOs, local representatives of government agencies concerned with rural development and environment conservation (*prefeituras*, INCRA, IBAMA, EMATER, etc.). The exact mix of participants differed from site to site. For example, in the Redenção workshop (Conceição region) there were more formal and state institutions than in other sites; in Marabá there was greater participation by NGOs; while in Altamira the workshop was dominated for farmers' leaders.

All the local workshops had presentations of the research findings and working groups for discussion and proposals of alternatives to conciliate environment and agrarian policies and to increase participation of farmers' groups in policy-making.

The regional workshop held in Belém targeted the same audience, but attempted to bring together regional leaders and officers plus the research and academic communities. Summary reports of each workshop, including lists of participants are presented in Annex E.

Two workshops not initially planned have also been organised, as a result of the Marabá and Belém workshops. A workshop held in February in Belém brought together BASA, representatives of technical assistance and FETAGRI to discuss how to change the technical regulations for credit technical to take into account farmers' local environmental and economic conditions, and how to fund activities related to natural resource conservation. A workshop in Marabá is planned for March, organised by the FETAGRI with project team support, to discuss how farmers' organisations in Marabá can increase their demands and reconcile agricultural production and environment conservation in their projects activities.

6. Environmental Assessment

6.1 The direct environmental impacts were neutral, as fieldwork was restricted to interviews and the use of secondary data.

6.2 Greater participation of farmers' organisations in current fora to discuss environment policies can help to take agriculture development needs into account in environment policy making. Farmers' organisations are already important actors in policy implementation on agrarian issues. Therefore, their increased awareness of the negative impacts of current credit and land use policies can contribute to the adoption of more ecologically sound policies. These can contribute to decreased deforestation or the adoption of mitigation measures to avoid environment degradation.

6.3 Research identified that most of the farmers' organisations are not aware that some government agencies or programmes have seats for civil society representatives on their committees. Farmers' participation in rural development councils, even if in a numeric minority has helped to incorporate farmers' views into policy implementation.

6.4 As a consequence of the Belém workshop the regional development bank BASA agreed to meet with technicians and farmers' leaders to discuss how economic and technical criteria for credit could take into account natural resource conservation and be better adapted to local contexts and conditions. This demonstrates that there is room for further negotiation and that farmers' leaders interest and awareness can trigger sustainable land use practices.

7. Contribution of Outputs

The research project has had an impact on the thinking of researchers and other stakeholders involved in the process, and is contributing to further development of policy and research. It is also influencing how key develop actors develop projects and implement policy instruments. The findings from the research project, the research process, and the dissemination of information to actors involved in the policy process has already contributed to increased communication and co-ordination between actors. The main evidence of this is a workshop bringing together BASA, FETAGRI and institutions of technical assistance to discuss for the first time how these organisations could work together to improve credit programmes. As a consequence of the Marabá workshop and earlier discussions between the research team and FETAGRI leaders about the research findings, FETAGRI has now decided to campaign on natural resources conservation measures on government agrarian programmes. FETAGRI is also discussing how they could influence the planning of the legal reserve, currently under discussion in the National Congress, to make it better adapted to colonists needs.

The Altamira workshop brought together local actors (some farmers' organisations and LAET) who have collaborated in the past but have had difficulties in co-ordinating their work in recent times. One of the workshop's proposals was to discuss a regional development programme involving grassroots farmers and it is likely that these actors will work together to launch a process for the development and design of this plan.

It was the first time that the NEAF/CAP undertook research on regional development policies. They now propose to continue to develop research in this area, and this will support and contribute to their post-graduate teaching and training activities.

The research has provided important insights into policies processes in Amazonia, a subject that has been overlooked in the existing literature. Whilst it has confirmed the lack of integration of agrarian and environmental policies it has identified some possible means of bringing the policy actors together. Although state actors are reluctant and constrained in a number of ways, civil society actors are more willing to engage in dialogue and to find areas of common ground and spaces for integration. The research has exposed the poor implementation of the Environmental Crimes Law in the state and has identified some institutional gaps and weaknesses that lie behind this. Overall, the research process itself, engaging with different policy actors who do not normally interact, has proved successful and innovative. This will shape further research and publications in this area by the research team and their respective institutions.

8. Publications and other communications materials

8.1 Books and Book chapters

Brown, K. and Muchagata, M. in preparation. Integrating agrarian and environmental policy in Amazonia. In Brown, K. (ed.) *Adaptive Institutions for conservation and development: Innovations in Amazonia*. New York: Columbia University Press.

Muchagata, M. in preparation. Farmers' organisations and environment conservation in Eastern Amazonia. In Brown, K. (ed.) *Adaptive Institutions for conservation and development: Innovations in Amazonia*. New York: Columbia University Press.

Muchagata, M. and Amaral, M. in press. Como conservar a floresta? Análise das práticas metodológicas e influência das políticas públicas atuais em um projeto de manejo florestal comunitário na Amazônia Oriental. In *'Manejo Integrado de Florestas Úmidas Neotropicais por Indústrias e Comunidades'* Belém: CIFOR (Annex D).

8.2 Journal articles

A number are planned and are being discussed by the project team

8.3 Institutional reports

None

8.4 Symposium, conference, workshop paper and posters

Muchagata, M., Brown, K. and Oliveira, M. *Farmers' participation in rural development policy process in Amazonia*. Paper to be presented at the *Society of Latin American Studies Annual Conference 2002*, Norwich 22- 24 March 2002 (Annex G)

Muchagata, M., Amaral, M., Assis, W. de, Barreto, P., Oliveira, M., Pereira, A. C., Prado, R., Sablayrolles, P., Salgado, I. and Veiga, I. *Políticas Agrárias e Ambientais na*

Amazônia nos anos 90. Impactos e Participação da Sociedade Civil. Paper to presented at the *V Simpósio Latino Americano de Investigação e Extensão em Sistemas Agropecuários e and V Encontro da Sociedade Brasileira de Sistemas de Produção*, Florianópolis, 20- 23 May 2002 (Annex H)

8.5 Newsletter articles

None

8.6 Academic thesis

Muchagata, M., 2002. *Shaping the Frontie: Farmers' organisations and environment in Eastern Amazonia*. PhD Thesis submitted to School of Development Studies University of East Anglia, February 2002. Although this project did not fund the completion of the PhD the research was supported by and closely allied to the project.

8.7 Extension-oriented leaflets, brochures and posters

ODG, Copatiorô, Imazon and NEAF/UFPa. 2000. *Políticas Agrárias e Ambientais na Amazônia Oriental. Impactos e Participação da Sociedade Civil*. Belém:ODG, Copatiorô, Imazon and NEAF/UFPa .24 pp. (Annex B)

8.8 Manuals and Guidelines

None

8.9 Media presentations

None

8.10 Reports and data records

Citation for this report:

Brown, K. and M.Muchagata, 2002. *Policies, institutions and interventions for sustainable land management in Amazonia* Final Report to DFID NRSP Programme. ODG, University of East Anglia Norwich.

9. References cited in the report, sections 1-7

Binswanger, H.P., 1991. Brazilian policies that encourage deforestation in Amazonia. *World Development* 19.7:821-829.

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Hammond, J.L., 1999. Law and Disorder; The Brazilian Landless Farmworkers' Movement. *Bulletin of Latin American Research* 18.4:469-489.

Homma, A. K. (Ed.). 1998. *Amazônia: Meio ambiente e Desenvolvimento Agrícola*. Brasília: EMBRAPA-SPI.

Houtzager, P.P., 2001. Collective action and political authority: Rural workers, church and state in Brazil. *Theory and Society* 30.1:1-45.

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10. Project Logframe

Narrative summary	Measurable Indicators	Means of verification	Important assumptions
<p>Goal Strategies to secure the livelihoods of poor people dependent on agricultural systems near the receding forest margins developed and promoted (FAI Purpose 2).</p>	<p>By 2002 interaction between the crop, livestock and agroforestry components of the system in two targeted areas understood and constraints identified. By 2002 new approaches to husbandry and resource management which improve the sustainability and productivity of bush fallow rotations validated. By 2002 new approaches to improve fragile soils of low fertility in humid forest zones validated. By 2003 integrated natural resource management strategies validated in relevant systems in three target countries and adopted by target institutions.</p>	<p>Data collected and collated by the programme manager.</p>	<p>Sustainable sedentary systems for poor and fragile soils can be devised. Land ownership issues can be overcome.</p>
<p>Purpose Increased understanding of the relationship between policy processes and sustainable livelihood impacts for smallholder farmers by key policy actors in the NRSP-FAI target area in Eastern Amazonia</p>	<p>By the end February 2002</p> <ul style="list-style-type: none"> • Project's findings recognised and minuted by at least one key government agency at regional and national level and one key NGO 	<p>Reports, minutes and other documents produced by governmental agencies such as INCRA, IBAMA, SECTAM or municipal <i>prefeituras</i> and national and regional NGOs, such as FETAGRI or CNS. Workshop proceedings Reviews by Programme Managers</p>	<p>Willingness of different national institutions to collaborate.</p>
<p>Outputs 1. Enhanced understanding of the interactions between recent environmental and agrarian policies and land use and livelihoods at different locations</p>	<p>By April 2001:</p> <ul style="list-style-type: none"> • Analysis of policy processes for two agrarian and environmental policy innovations from literature and using additional data available in the region 	<p>Project synthesis report Project discussion paper Proceedings of local and regional workshops Project quarterly, annual and final reports Publications in scientific journals</p>	<p>Dramatic shifts in policy do not make institutional collaboration in workshops impossible</p>
<p>2. Processes of policy formulation including links between national, state and local level policies and institutions, especially the role of civil society, mapped and used by research teams as an analytical and conceptual tool for policy discussions with target actors and institutions</p>	<p>By October 2001</p> <ul style="list-style-type: none"> • Opportunities and constraints to co-operation and inclusion of civil society groups (with special reference to those representing poorer farmers) in policy processes identified and analysed • Institutional map developed 		<p>Effective engagement with key target organisations</p>
<p>3. Active engagement with, and contribution to, the debate on impacts of environment and agrarian policy on frontier dynamics under different conditions with key stakeholders and policy actors through the research process</p>	<p>By February 2002</p> <ul style="list-style-type: none"> • Means for engagement with policy actors achieved through preparation and dissemination of the project's discussion paper in 2 languages <p>By February 2002</p> <ul style="list-style-type: none"> • Workshops attended by target institutions and discussions held on the project's findings with key policy actors 		

<p>Activities</p> <p>1.1 Literature on recent agrarian and environmental policies brought together, synthesised and disseminated.</p> <p>1.2 Using evidence from 3 sites, interactions between different policies and their effects on land use patterns and livelihood security documented and assessed for conflict or complementarity.</p> <p>2.1 Key actors, institutions and the horizontal and vertical linkages analysed and mapped.</p> <p>2.2 Opportunities for greater co-ordination and inclusiveness identified.</p> <p>3.1 Convene three local and one regional workshop for the key actors and institutions identified to discuss scope for action based on the opportunities identified.</p> <p>3.2 Broad dissemination of research findings at seminar for DFID, and through academic papers and presentations.</p>	<p>Budget</p> <p>Staff costs- UK based £11117</p> <p>Staff costs- Overseas based £36711</p> <p>Overheads £6670</p> <p>Capital Equipment £5000</p> <p>Overseas Travel and Subsistence £18600</p> <p>Miscellaneous £17500</p> <p>Total £95598</p>	<p>Milestones</p> <p>1.1 Meeting of full Brazil research team by end January 2001</p> <p>1.2 Literature brought together, synthesised and disseminated end April 2001</p> <p>1.3 Interactions between different policies documented by end April 2001.</p> <p>2.1 Institutional map completed by end October 2001</p> <p>2.2 Identification of policy opportunities by end October 2001.</p> <p>3.1 Participation by key actors and consideration of policy options at three local and one regional workshop by end November 2001.</p> <p>3.2 Dissemination of findings at seminar for DFID by end February 2002.</p>	<p>Timely participation of farmers' organisations and other institutions at the workshops</p> <p>Links to key policy makers established</p>
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11. Keywords

Environmental Policies, Agrarian Policies, Forest-Agriculture Interface, Colonists, Sustainable Agriculture, Institutions, Participation, Amazonia, Brazil

12 Annexes

- A. Scientific summary of the research findings: *Policies, Institutions and Interventions for Sustainable Land Management in Amazonia*
- B. Working Paper: *Políticas Agrárias e Ambientais na Amazônia Oriental. Impactos e Participação da Sociedade Civil (Agrarian and Environmental Policies in Eastern Amazonia. Impacts and Participation of the Civil Society)*.
- C. Briefing Paper: *Policies and institutions for sustainable land management in Amazonia: An assessment of PRONAF and Environmental Crimes legislation in Para state (final draft)*
- D. Book chapter: *Como conservar a floresta? Análise das práticas metodológicas e influência das políticas públicas atuais em um projeto de manejo florestal comunitário na Amazônia Oriental (How to conserve the Forest. Analysis of methodological practices and influence of the current public policies on a community forest management project)*
- E. Workshop reports
- F. List of Interviewees
- G. Conference paper abstract: *Farmers' participation in rural development policy process in Amazonia*
- H. Conference paper abstract: *Políticas Agrárias e Ambientais na Amazônia nos anos 90. Impactos e Participação da Sociedade Civil. (Agrarian and Environmental Policies in Eastern Amazonia. Impacts and Participation of the Civil Society)*
- I. Final Project Inventory