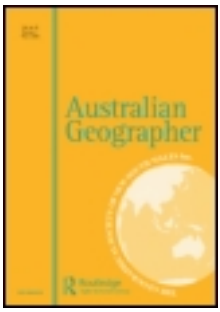

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Rural Development and Social Exclusion: A case study of sustainability and distributive issues in Brazil

JUTTA GUTBERLET [a]
[a] University of Newcastle , Australia
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Rural Development and Social Exclusion: a case study of sustainability and distributive issues in Brazil

JUTTA GUTBERLET, *University of Newcastle, Australia*

ABSTRACT *Rural modernisation based on the concept of the Green Revolution has changed the social and ecological landscape in Brazil, particularly since the late 1960s. The expansion of extensive cattle ranching and mechanised agriculture have been major driving forces in this transformation process. In the Midwest, one of the last frontier regions in Brazil, extensive savanna land has recently been cleared for cash-crop production and pastureland. After the displacement of indigenous people during early confrontations with Portuguese explorers in the eighteenth century, we are now witnessing the dispossession of traditional small-scale farmers who had settled in the region two centuries ago. Rural communities have remained marginalised and powerless in the face of pressure and impact from recent development of agribusiness and cattle ranching. The agricultural activity of the smallholders is subsistence-oriented with little market integration, and their production system (shifting cultivation) is based on local knowledge, which seems to be well adapted to the savanna environment. The system is no longer sustainable. Due to capitalist expansion and prevailing conditions of unsecured land tenure, lack of access to basic assets, and high population pressure on scarce resources, the peasants have had to intensify production. This research focuses on the consequences of recent social, economic and environmental change in traditional rural communities.*

KEY WORDS *Sustainability; social exclusion; marginalisation; equity; distributive justice; rural change; peasant agriculture; shifting cultivation; Brazil.*

Expansion of modernised agriculture and social implications in developing countries

Since the late 1960s, the savanna region in mid-western Brazil has been suffering dramatic social and environmental consequences of rural change due to rapidly expanding agribusiness and cattle ranching (Figure 1). Political, social and economic forces underlying this recent transformation in agricultural production and land use are driving the majority of the local rural population into social exclusion. The intensification of modernised and mechanised production modes and the expansion of extensive cattle ranching have severe drawbacks for the ecosystem and for the lives of the local, traditional, small-scale farmers in adjacent regions. As a result, in some areas the original indigenous population has been expelled into territories further north, and already vulnerable traditional peasant communities have experienced increased marginalisation and expulsion.

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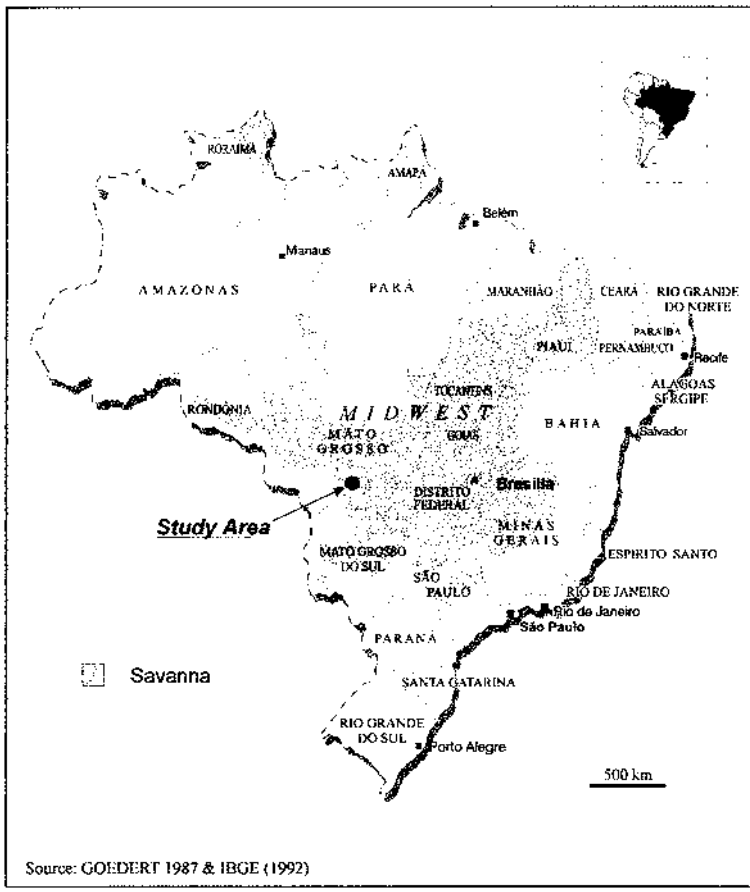

FIGURE 1. The Brazilian Midwest and the savanna ecosystem.

The prevailing production mode of modernised agriculture has adopted the Green Revolution, characterised by an intensification of the use of fossil energy (mechanisation, chemical fertilisers, pesticides, herbicides, and defoliants); a low use of labour during the production process (for example, on average a soybean farm of 1000 ha employs about three people); and an increasing concentration of the economic surplus generated by production. The processes of rural change which transformed and restructured the mid-western region of Brazil towards modernised and capital-intensive production modes have been described by many authors for different regions, primarily in Newly Industrialised Countries (McMichael & Myhre 1990; McMichael & Raynolds 1994). This recent rural development has brought major social and structural consequences for small-scale peasant communities in the Cuiabá catchment, adjacent to the expanding soybean plantations on the great plains in the state of Mato Grosso. We are currently witnessing there an extreme situation of rural social exclusion, with an increase in peasant proletarisation and rural flight from these communities.

Social exclusion is an extreme form of marginalisation, and can be understood as 'one or more dimensions of non-involvement or participation in that society' (Townroe 1996, p. 187). Not only do excluded groups suffer from all the negative consequences related to poverty, but they are also prevented from being citizens, in the sense of

having access to social services and basic infrastructure. They are disadvantaged in terms of access to any sort of adequate health and childcare, education, sanitation, or welfare assistance. Poverty is primarily concerned with distributional issues, such as the lack of resources at the disposal of individuals, whereas social exclusion focuses also on relational issues of inadequate social participation (Townsend 1977), lack of social integration and lack of power (Room 1995, pp. 4–7). In countries where there is no social welfare, individuals are most vulnerable to exploitation and disempowerment. In rural communities, often the only way to overcome exclusion is to build on solidarity among the peasants, and to struggle for citizenship through community organisations.

Finally, exclusion can also threaten the environment. In some cases, for example, peasants are forced to overexploit natural resources in order to subsist. Therefore, social and economic exclusion may also induce unsustainability (Lonergan 1993).

Ecological sustainability and sustainable society

Sustainable development is about 'meeting the needs of the present without compromising the ability of future generations to accomplish their own needs' (WCED 1987). It is widely understood as the adequate management, use and protection of natural resources, guaranteeing the livelihood of humanity. According to prominent international conservation agencies (IUCN 1980), sustainable utilisation is based on a rate of resource use which equals, or is less than, the rate of renewal, restoration or replenishment. Ecological sustainability embraces the natural resource basis (energy, soil, water, air) and the ecological processes and natural cycles on which life depends, as the foundation that has to be sustained in order to guarantee and improve the quality of life for present and future societies (Rees 1990; Campbell & Heck 1997; Ellyard 1998). According to this definition, the final aspiration is to reach sustainable societies within a diversified cultural, social, ecological and economic environment. The process which leads to this final outcome is continuous, and is based on participation rather than exclusion. It considers the local and global needs and equitable access to resources, production and outcomes for present and future generations.

The ethical debate on sustainable development is broad, and there are different perspectives on the issue, varying from rather ecocentric to anthropocentric and, more recently, to so-called *homocentric* points of view (Engel 1990). Pepper describes the homocentric perspective as being 'impelled by humanistic goals, giving priority to the fulfilment of the human needs but considering also the non-human nature in that process' (Pepper 1998, p. 2). This priority is important with respect to the dimension of poverty and social exclusion prevailing in less-developed countries, where the practices of exploiting humans and nature are extremely visible. However, just as in the North, quality of life in the South depends intrinsically on ecological sustainability.

Poverty and distributive justice

Distributive issues are also related to sustainability, and therefore sustainable development is also about revaluing and redistributing wealth and power (O'Riordan 1989, p. 93). Equity will also have to be considered in order to come closer to the notion of a sustainable society (Beder 1993, pp. 145–58). Distributive justice, in general, relates to the distribution of, and access to, resources. Some of the most urgent tasks are to search for material equality and poverty relief that takes into account an ecologically

sustainable lifestyle, and considers the complete life cycle of production and consumption.

The poverty issue in developing countries has received increasing international attention since the 1980s, basically because it was seen as a major hindrance to the world's sustainability (Gallopin *et al.* 1989). Nevertheless, the discussion concerning global environmental change pays less attention to the fact that distributive inequalities between North and South are major reasons for non-sustainability. There is a strong interrelation between social exclusion, poverty or misery, and non-sustainable practices. Greater equality will eradicate misery and poverty, and ultimately can contribute to a higher level of social sustainability (WCED 1987, p. 28), but it does not necessarily lead to increased ecological sustainability. Poverty relief alone will not solve our local and global environmental problems, nor will it eradicate the negative impacts of our production processes. The industrial and agro-industrial production modes and consumption patterns prevailing in North and South are major reasons for our environmental problems. Both poverty and affluence are driving forces behind environmental degradation and resource depletion. These considerations bring us back to the challenge of ecological sustainability.

Concerns about equity in the distribution of resources and issues of environmental sustainability gave rise to the environmental justice movement. According to Dobson (1998), environmental justice is 'just distribution of environmental goods and bads among human populations'. He and other authors (Hofrichter 1993; Pulido 1996) have described how environmental risk is not divided equally within or across society, and how it is concentrated on the most vulnerable groups. In developing countries, but also in richer countries, the groups that receive a disproportionate amount of environmental 'bads' are the poor in general, and among them, the discriminated groups in particular. It is even possible to identify a spatial differentiation, where predominantly marginalised people receive most of the environmental 'bads'. The same is true for big cities, where waste dumps, industrial waste disposal, open running sewage, or industrial pollution are concentrated in territories where marginalised people live.

Marginalisation and poverty are also the results of unequal distribution of power, which may lead to oppression and exploitation. The conceptual framework of this research is also based on a social theory of oppression, as, for example, discussed by Young (1990), Laws (1994) and Nielsen and Ware (1997). For Young, oppression refers to 'structural phenomena that immobilise or diminish a group' (1990, p. 42). Political, social and cultural oppression and economic exploitation are also related to the distribution and exercise of power, and are generally characterised by inequality. In developing countries, a major source of powerlessness derives from the economic marginalisation of part of the population, but also from structural inequalities, for example, related to education, and access to information, health care and sanitation. In extreme cases, power is used to oppress and exploit marginalised people, despite their being in the majority, numerically. The poor are most vulnerable, usually having few ways to avoid physical and economical exploitation.

Laws (1994) further reiterates the description of Young's *five faces of oppression*, relating to exploitation, marginalisation, powerlessness, cultural imperialism and violence. These faces are not static, and produce more or less intense responses and counteractions among the exploited. In weak democracies, such as in most developing countries, the oppressed themselves have little chance to resist and contest their position. Resistance among the population can take the shape of local community action, unionisation, or strong social action, such as by the Movement of the Landless

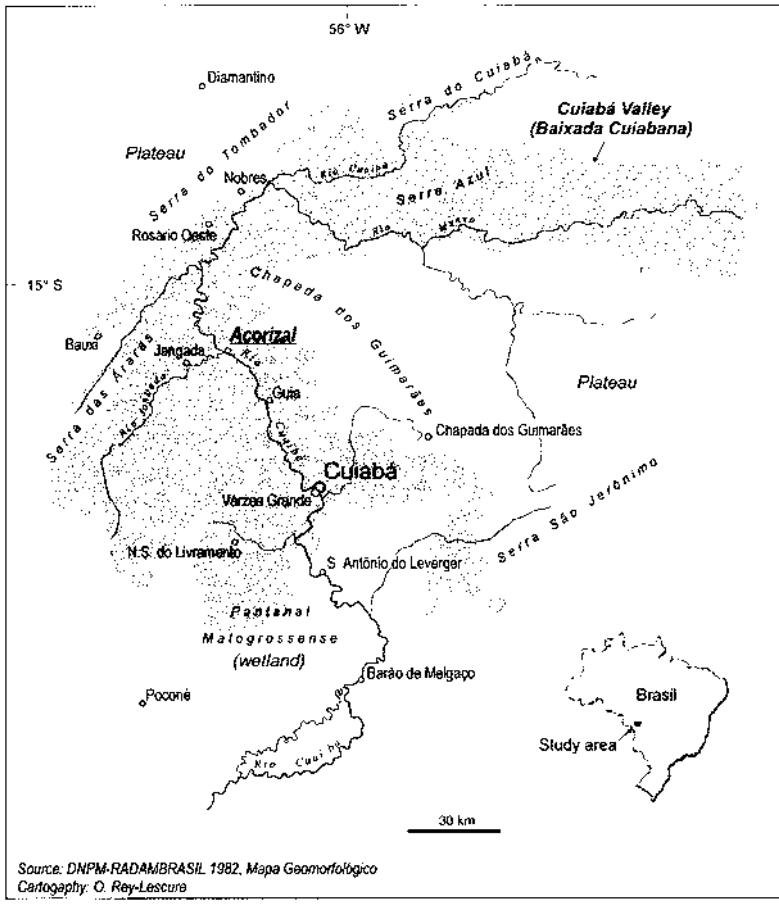

FIGURE 2. The Cuiabá catchment, with prevailing peasant farming, adjacent to the Plateau, dominated by large-scale monoculture.

People (*Movimento dos Sem Terra*) or the Movement of the Shelterless People (*Movimento dos Sem Teto*) in Brazil. It may also develop into other, politically safer, areas (for example, cultural or environmental activism), without necessarily threatening the existing hegemonic structures of politics and economy.

The present study highlights some characteristics of oppression found in rural communities in the municipality of Acorizal in the state of Mato Grosso, which is located in the Cuiabá river catchment, in the mid-western hinterland of Brazil (Figure 2). The discussion elaborates on distinctive aspects of inequality. The inequalities are based on distributive issues (such as access to agricultural land, rural credit, infrastructure, education and health care, and integration in local market structures), and they result in poverty, misery and social exclusion, as well as environmental degradation. Extreme forms of exploitation of the marginalised and powerless groups are taking place in the developing world, where the debates on citizenship and social rights are still emerging.

Social exclusion at the Brazilian rural periphery

Results from the present research on traditional rural communities reveal strong inequalities related to access to production and distribution of resources among the traditional rural population (Gutberlet 1994, 1995, 1998). Since distributive issues are interrelated with questions of sustainability, the situation of the smallholders and the landless rural population in this region has to be examined also in terms of the distribution of, and access to, resources. The case study is inserted in the context of world-wide reorganisation of food and agricultural systems as a consequence of the expansion of capitalist market forces into countries of the South, particularly since the 1970s. The resultant increase in poverty and landless peasantry is the most striking social-economic facet of this global economic, agro-industrial restructuring process.

Up to the late 1960s, the Midwest of Brazil played a minor role in the country's economy. The wealth produced during the eighteenth and nineteenth centuries' gold and diamond boom was transferred out of the region and left few incentives for further development (Bertran 1988). Until then, the natural assets of the savanna ecosystem were considered poor and inappropriate for agricultural production. Savanna seemed to provide only good pastureland. As is the case with tropical rainforests, the rich biodiversity and enormous potential of the savanna, in terms of medicinal and nutritional uses, had always been ignored by the government, agribusiness, and developers in general. These opinions, however, dismissed the fact that, through many generations, the local population had acquired a profound knowledge of useful natural resources and appropriate techniques for the use and management of those resources.

The most important subsistence food crop is cassava (*mandioca*), originally cultivated by the indigenous people from Mato Grosso, even before the arrival of the Portuguese colonisers. Important natural resources are, for example, *pequi* (*Caryocar brasiliense*), *buriti* (*Mauritia flexuosa*), *araticum* (*Annona crassiflora*), *baru* (*Dypterix alata*), *cagaita* (*Eugenia dysenterica*), *jatobá* (*Hymenea stigonocarpa*), and medicinal plants such as *quina* (*Strychnos pseudoquina*) and *poaia* (*Ipecacuanha*), besides a wide range of different construction materials (for example, certain types of wood, fibres and clay) (Gutberlet 1994). Over time, the locals have developed methods to optimise production through diversifying the crops on their fields and in their home gardens. They have developed a particular system of shifting-cultivation adapted to the savanna conditions (*roça-de-toco*) for their food crops. Although the average productivity under traditional cultivation is low, on a long-term basis, the *roça-de-toco* has proved to be more sustainable and more adapted to the particular ecosystem than mechanised and energy-intensive production modes. Usually, the peasant cultivates the same site over a period of three to four years. The following fallow period varies to the optimum of at least 10 to 12 years, but it depends primarily on the original soil quality and water accessibility of the plot, as well as on the availability of new land. If the necessary fallow period is duly respected, soil fertility recovers over the time allowed, enabling future agricultural use (Gutberlet 1994).

Within the changing international scenario of industrial and agro-food production, and as part of the global capitalist market embedded in a new international division of labour and production sites, the Government of Brazil, like those of other developing countries, has largely encouraged and subsidised the expansion of agribusiness and large-scale cattle production. These policies are 'situated within prevailing world-economic orthodoxy which subordinates the agricultural sector to industrialisation and the domestic economy to foreign currency' (McMichael & Raynolds 1994, p. 317).

This kind of development strategy also applied to the savanna region, and particularly to the great plains in the Midwest, where modernised and mechanised agriculture had been introduced during the 1970s. Inspired by the Green Revolution, leading Brazilian research and technology centres, including universities in the south-east, started to invest in the development of machinery, high-yielding crop varieties, fertilisers, pesticides, and other measures to improve soil fertility, adapted to the specific geo-ecological conditions of the savanna. Research projects and development programs were elaborated to turn the savanna region in the Midwest into one of the world's biggest grain-producing territories. The World Bank offered loans, while several international technical co-operation agencies, such as the United Nations Food and Agriculture Organisation (FAO) and the Japanese International Co-operation Agency (JICA), gave technical and research assistance to promote the development of agribusiness. Their particular interest was to expand production of grains and soybeans to supply the rapidly increasing overseas demand, especially in Japan.

To expand the agricultural frontier further north and north-west, and to guarantee the outflow of the agricultural production, the government provided road infrastructure during the late 1960s and early 1970s, connecting the Midwest with the Amazon basin. Two unpaved roads were built to link Cuiabá, the capital of the state of Mato Grosso, with Porto Velho in the state of Rondônia (BR 364) and with Santarém in the state of Pará (BR 163). Some sections of these roads were paved under the national development plan (POLONOROESTE), during the mid-1980s. Since its beginning, the extension of the road network has caused major impacts on the indigenous population and natural resources, increasing the influx of migrants, land conflicts, and the outflow of resources and agricultural products.

Since the 1960s, the government has also promoted the establishment of new settlements and agricultural development in the region. The savanna became a major focus for the introduction of mechanised agriculture, large-scale irrigation and cattle ranching. The government made available land at extremely low prices and provided subsidies and credit lines to stimulate large-scale agricultural projects. Funding agencies, such as JICA, played a leading role in promoting the government's agricultural development program PRODECER *(Programa de Desenvolvimento do Cerrado)*, whose major interest was to expand cash-crop production into the savanna. The programme included funding for research on high-yielding crop varieties (mainly soybean) adapted to the environmental characteristics of the savanna (Bertrand *et al.* 1990; Mueller 1990). The programs introduced in the 1970s promoted primarily the adoption of Green Revolution technology, which is based on energy-intensive and capital-intensive agricultural practices. Even predictable environmental and social consequences of such measures were not taken into account, nor did these development strategies consider existing local, centuries-old strategies of production and natural resource extraction, or any approach towards integrated rural development. The local population, their rural associations, and community groups had no voice during the design and implementation of the programs.

PRODEAGRO (*Programa de Desenvolvimento Agroambiental do Estado de Mato Grosso*) is the most recent rural development program for this region, and is co-financed by the Federal Government (14 per cent), the State Government (14 per cent) and the World Bank (71 per cent). The program should take sustainability criteria into consideration, and special attention should be given to the indigenous population in the region (Governo do Estado de Mato Grosso 1995). However, very little has been achieved since the program started in 1993: a recent review suggests

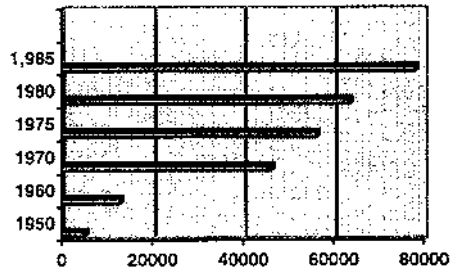

FIGURE 3. The number of farms in Mato Grosso (1950–1985).

drastic changes towards a participative strategy in order to accomplish the given objectives.

Data on agricultural production in the Midwest highlight the dimensions of recent change for this region, and specifically for Mato Grosso. The number of rural establishments and the percentage of farmland cultivated in Mato Grosso increased rapidly during the first agricultural boom, from 1950 to 1985 (Figures 3 and 4). Ninety per cent of the annual crops grown in Mato Grosso were soybean, sugar cane, rice and maize.

The production of soybean is the most striking example of agricultural expansion into the Midwest since the late 1960s. Whereas during the period 1964–66 almost 100 per cent of the soybean production (approximately 50 0000 tonnes per year) was concentrated in the southern region of Brazil, in 1984–86 already 31 per cent (out of 15.7 million tonnes per year) was produced in the Midwest. During 1992–94 the rate increased further to about 38 per cent of the total Brazilian soybean production of 22.5 million tonnes per year (FIBGE Agricultural Statistical Yearbooks 1959–1991; Ministério da Agricultura 1994).

In terms of cultivated area, soybean production in Mato Grosso significantly expanded between 1987 and 1994 from approximately 1.1 million to 2 million ha. During the same period, the cultivation of rice decreased from approximately 700 000 to 500 000 ha; black/red beans (*feijão*), one of the country's most important food items, decreased from 83 000 to 39 000 ha; and cassava (*mandioca*) remained stable with 23 000 ha. Apart from soybeans, only the area under maize production had slightly increased from 305 000 to 435 000 during this time (FIBGE Agricultural Statistical Yearbooks 1987–95: *Produção Agrícola Municipal*, in Governo do Estado de Mato Grosso 1997, pp. 147–51).

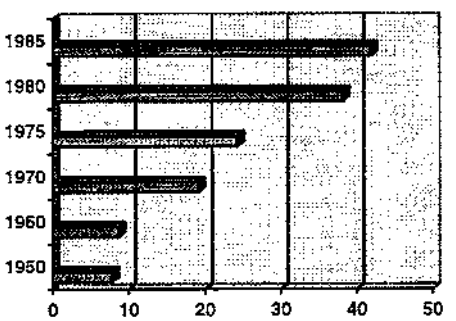

FIGURE 4. Agricultural land in use as a percentage of total agricultural land (1950–1985).

TABLE 1. Medical records on pesticide poisoning in Brazil (1986–91)

Year	1986	1987	1988	1989	1990	1991	1986–91
Official records (SINTOX)	1096	977	1193	997	1763	3004	9030
Estimate from the World Health Organisation	54 800	48 850	59 650	49 850	88 150	150 200	451 500

Source: Sistema Nacional de Informações Tóxico-Farmacológicas (SINTOX), Ministério da Saúde—Fundação Osvaldo Cruz, in Amstalden (1993), pp. 93–4.

The expansion of cattle stock is also significant in the Midwest. Between 1960 and 1990 the number of cattle increased more than four times, particularly after 1975. Since the beginning of the 1990s, the Midwest has become the most important cattle-ranching region with 46 million head, 31 per cent of the total cattle stock of 147 million head in Brazil (FIBGE 1996a). Increasing areas in the savanna are being cleared for the expansion of large-scale grazing activities. The soil is prepared mechanically and, in general, exotic grass seeds are planted, requiring a high input of herbicides, pesticides and chemical fertiliser.

The area of land under annual crops in the Midwest has increased from approximately 79 000 ha in 1960 to more than 3 million ha in 1993. In the state of Mato Grosso alone, the number of tractors has increased from 47 to 30 000 between 1960 and 1993 (Governo do Estado de Mato Grosso 1997, p. 142).

The environmental impacts related to the transformation in land use are serious, and may result in the complete loss of some ecological components (flora, fauna, soil fertility and water quality). Compared to the felling of the dense rainforest, clear-cutting of the savanna is much less labour intense, much faster, and can easily be done mechanically. Large-scale farmers usually do not preserve gallery forests, and tend to plant right next to the riverbanks. Loss of biodiversity, soil erosion, and contamination of the surface water are severe environmental consequences of these practices.

The application of chemical fertiliser, pesticides and herbicides is intense during the whole production cycle. For example, 80 per cent of the weight of the harvested soybean is represented by the input of fertiliser (IBASE 1986). To facilitate a homogeneous harvest many farmers spray their soybean fields with defoliants, such as Agent Orange. In general, there is no awareness of the toxic and cumulative effect of these chemicals on health and the environment. According to some employees, poisoning is frequent among the labour force involved in the manipulation and application of these chemicals. Medical records from the National System of Information on Toxicology and Pharmacology (SINTOX) give some evidence about the increasing number of poisonings with pesticides used in agriculture and pasture in Brazil between 1986 and 1991 (Table 1). According to an estimate from the World Health Organisation (WHO), the cases registered officially only reflect about 2 per cent of the real number of pesticide poisonings.

Recently the production of soybeans has been declining: there are signs of soil fatigue and an increasing number of new pests infecting the monoculture. According to the national agro-research centre EMBRAPA (*Empresa Brasileira de Pesquisa Agropecuária*), farmers cultivating soybeans on a large-scale basis, as in the Midwest, have recently been reporting an annual loss of approximately US$1 billion, representing 15 per cent of their annual harvest. The major reason for the decline in productivity is related to

more than 40 different new diseases, caused by fungus, nematodes and bacteria, which infect the plantations (*Folha de São Paulo* 23 September 1997). As a result, farmers have started to rotate soybeans with maize and they also have introduced poultry. However, there is still little awareness about the benefits from soil conservation measures and less chemical-intensive production modes.

Land tenure and expulsion of the peasant population

Before the Portuguese colonisers arrived in Mato Grosso, at the beginning of the eighteenth century, a great diversity of indigenous groups, belonging to the main linguistic line *Gê*, had occupied the region for more than 11 000 years. They had developed an important local knowledge of the environment, which also influenced the agricultural practices of the colonisers and their descendants. The first Portuguese explorers came in search of precious minerals and slave labour to supply the sugar plantations and mills near the coast. In order to colonise the hinterland, two centuries ago the Portuguese crown divided the land into *Sesmarias*, a landholding system that entitled peasants to agricultural production (Lima 1954).

The *Sesmaria* system originated in Portugal during the late fourteenth century as a strategy to solve the country's food crisis. As a consequence of the feudal system, many landowners were not willing to cultivate their land and there was a constant food shortage. In order to eliminate idle land, the crown established the *Sesmaria* system, which meant that those who did not cultivate their land would lose ownership, and the land would return to the original owner, the Crown. In Portugal, this regime had been established to prevent rural flight and to help supply the cities with food and resources. The same idea was then transferred to the colony of Brazil, but, without adapting it to the specific socio-economic and geographical situation encountered there. The system was in use until Brazil's independence in 1822 (Silva 1996, pp. 37–78).

In some peripheral regions, such as the Cuiabá catchment, and particularly the municipality of Acorizal, the *Sesmaria* landholding system is still present. Most of the peasants of the small rural communities are descendants of the original *Sesmaria* land owners. Their cultural roots are heterogeneous, resulting from a mixture among indigenous people, Africans who were brought to work as slave labour during the colonial period, and the Portuguese. Many of those rural communities, such as we find in the municipality of Acorizal, are located in the Cuiabá river catchment, a rather peripheral region in the Midwest. Almost half of the population of Acorizal (2453 inhabitants) live in small, dispersed rural communities (IBGE 1991).

Owing to inaccurate land division, lack of documentation, and an uncertain legal situation, the system still generates land conflicts and insecurity among the smallholders. In the case of Acorizal, there has also been communal land, which was once donated from an individual *Sesmaria* holder to the church for the community to cultivate.

Agricultural production among the peasants who still hold land is subsistence-oriented, and includes food crops such as cassava, corn and rice, but also vegetables, fruits, roots and medicinal plants. Over several generations traditional agriculture (*roça de toco*) has been adapted to the prevailing environmental conditions and constraints of savanna ecosystems. Public transport by road is precarious and unreliable and, since most smallholders do not own means of transport, they sell the surplus production, mainly cassava flour, to middlemen, who serve the market of Cuiabá (EMPAER 1989).

Today almost 50 per cent of the households live under precarious conditions with a

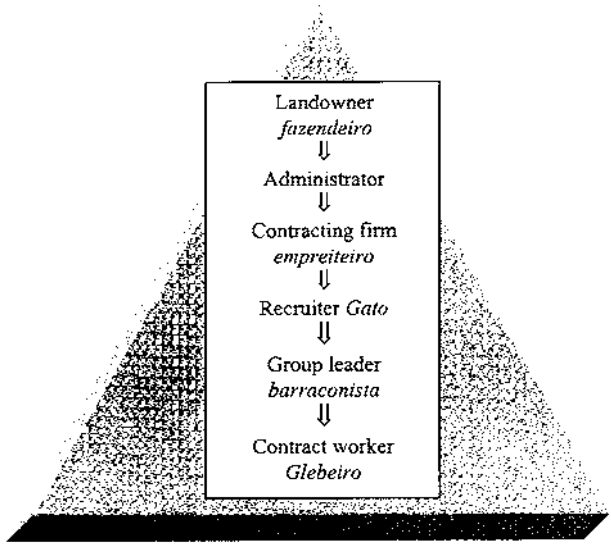

FIGURE 5. Organisational hierarchy of contract labour.

family income of less than one minimum wage (in November 1996 one minimum wage was approximately US$100—in March 1999, the equivalent value is US$55) (FIBGE 1996b). Many peasants overexploit their land in order to subsist. Increasing land pressure and a desperate economic situation forces the peasants to shorten the fallow period, to clear-cut forest reserves, and to expand agricultural production into less productive land. Another alternative is to migrate into the cities in search of employment, or to do contract work. The particular social and economic circumstances the peasants are facing now can be compared with the global consequences of the reorganisation of the agro-food system and class relations, as described by McMichael and Raynolds for less-developed countries in general (1994, pp. 321–5).

Rural change and peasant exploitation

Exploitation becomes particularly visible in the case of a certain kind of contract work, which in Brazil is known as *escravidão branca* (white slavery) (*Guardian Weekly* 1998, p. 16). This phenomenon occurs in the study region, where peasants from traditional rural communities in the Cuiabá catchment are being hired for contract work to clear-cut future pasture land in the Amazon forest. Since for many peasants agricultural production no longer provides a living, the contract work seems to be the only alternative for them and their families to remain within their communities. Despite the global pressure to protect Brazil's tropical rainforest, the agricultural frontier is still developing more rapidly than ever into the Amazon region. The process of deforestation is almost out of control and relies on a system of exploiting humans and nature. Contract workers (*glebeiros*) clear-cut the forest with chainsaws, axes and the use of fire. The contracting scheme between landowner (*fazendeiro*) and the actual workers relies on a division of labour with different spheres of power and obligations (Figure 5).

The administrator of the farm usually hires a contracting firm (*empreiteiro*) which chooses the person (*gato*) to recruit the labourers. There is a strong hierarchy of power

from those who carry out the work to those who just supervise and report to the *gato*. Contract workers who have achieved the confidence of the *gato* receive further tasks from which they might benefit. Group leaders (*barraconistas*) are also in charge of selling food and other supplies to the workers, which is a profitable business, since there is no competition with other grocery stores or pharmacies in the area, and the group leaders receive a certain percentage from the sold goods.

Wages are paid according to the work undertaken in a certain time, and vary between R$100 and R$350 a month (US$85 to US$290, November 1996). Although, compared to the average rural income of one minimum wage (in November 1996, one minimum wage was R$120 or US$100), the rate for contract work seems attractive, it is generally insufficient to cover the expenditures of the worker and his family back home. The cost of living in remote areas, such as northern Mato Grosso, is extremely high, and food and medicine are up to ten times more expensive than in urban areas. Usually the contract workers spend half of their income on food, medicine, and the charges for tools and fuel for the chainsaws. The workers do not have social security or health care, and working conditions are extremely insecure and dangerous, with accidents happening frequently. Tuberculosis and other infectious diseases are very widespread, and most of the workers have already been attacked by malaria. The low salaries and high costs of living drive the families into debt, and they have to rely on pay advances to subsist. This results in dependency between employee and employer, which finally reinforces the process of economic exploitation and exclusion.

The contract work follows a strict hierarchical structure, but it is based only on verbal agreements between contractor and workers. Although the *glebeiros* receive a salary, they are powerless and have no rights. The term 'slavery', used in Brazil for such working conditions, is appropriate, since the employees enter a certain vicious cycle of dependency and exploitation, becoming indebted, and with little choice but to continue within this working scheme. In order to subsist, they have to pay for overpriced food, medicine and the necessary tools, a situation which returns their income to the employer. Exploitation takes place at the edge of the frontier region, where equity and justice do not exist.

Activism among the contract workers is particularly difficult, due to the fact that they are recruited from different communities and stay for three or more months away from their families under extremely harsh conditions. Everyday life in the communities is based on solidarity among the families, but there is no strong political organisation, nor integration with existing social movements, such as the movement of the landless people (Movimento dos Sem Terra), which is active in other parts of Mato Grosso. Probably cultural and historical aspects as well as geographical remoteness play an important role in explaining the reasons for the lack of a strong political organisation in these rural communities.

Rural change and resulting inequalities

With the expansion of the agricultural frontier during the 1970s, indigenous people were fought or expelled; communal land of the small-scale peasants was expropriated; and the number of land conflicts between indigenous people, peasants and the newcomers increased drastically. Fencing properties became a regular measure, even among the peasants, in order to prevent illegal take-over. Since then, the farmers have experienced more difficulties in accessing land for agricultural purposes, for the extrac-

tion of natural resources (fruits, roots, wood, medicinal plants), and for pasture. The natural resource abundance has become scarce.

As emphasised by McMichael and Raynolds (1994, p. 324): 'the commercialisation of agriculture has undermined the viability of household food production as a livelihood strategy for peasant populations and a subsistence base for the rural poor'. On the other hand, public policies had always ignored the needs of this population. Today most of the smallholders are poor and socially excluded. Results from in-depth interviews with the local population, undertaken in 1996 and 1997, show that they experience exclusion and inequalities related to a number of factors listed below.

- *Insecure land tenure.* Most of the peasants do not have officially recognised land titles. The regulation of their properties is difficult due to missing documentation, lack of institutional interest, and low political priority given to solving the situation. As in most peripheral rural areas in Brazil, land conflicts have been frequent during the last few decades. For example, often large-scale farmers took over land illegally by expanding their fences into communal land or adjoining land of smallholders.
- *Reduced access to agricultural land.* Due to population increase and the privatisation of land that had been considered communal property over generations, less land is now available to the peasants.
- *Introduction of exotic pests and weeds.* Pests and weeds introduced by the monocultures spread into adjacent areas and damage the crops of smallholders, who usually do not utilise pesticides.
- *Inability to get rural credit.* Usually smallholders cannot meet the official criteria to borrow money, because most of them do not have recognised land titles, or they lack the required capital reserves. Only recently has some effort been made to offer particular credit lines to smallholders in such conditions (PRONAF, *Programa Nacional de Agricultura Familiar*, the Programme for Family Agriculture).
- *Exclusion from adequate technical assistance.* Precarious infrastructure and little willingness on the part of governmental agencies to provide technical assistance to the peasants are still prevailing conditions. Usually these agencies focus on agricultural practices based on the concept of the Green Revolution, with less emphasis given to environmentally appropriate technology and sustainable agriculture.
- *Difficult access to the market and unfair price regulation.* Most peasants do not have means of transport and their access to the market depends on middlemen. The smallholders have no bargaining power in determining the prices for their products, which are set by the middlemen and wholesalers.
- *Political exclusion.* Smallholders are politically excluded in many respects. They do not have equal access to information, and suffer from pressure upon their political choice. It is common practice in rural areas for political candidates to put pressure on their constituency in order to get the majority of votes. Public policies also do not reflect the essential needs of the rural population in terms of education, health care, transport and access to information.

The inclusion of these groups relates to distributional issues and equity that translate into access to agricultural land, rural credit, technical assistance, market access, and price regulation. Unfair distribution leads to environmental degradation, misery, and even to extreme forms of exploitation, such as white slavery (Vosti & Reardon 1997). As shown in Table 2, the scale to be addressed in searching for solutions is not only a local one, but also involves regional and global components.

TABLE 2. Inequality, resolutions and expected outcomes for smallholders

Aspects of inequality	From the perspective of smallholders	Resolutions	Expected outcomes
Unequal access to natural resources and financial assets	Undefined land tenure; land conflicts; landlessness; difficult access to rural credit	Revision of land-holding system; agrarian reform; rural credit programs and policies targeting the excluded rural population	Decreased rural exodus; increase in food production; cultural and biological diversity; greater ecological sustainability
Unequal distribution and exercise of power	Lack of political participation and local representation	Support structures for smallholders (co-operatives, rural NGOs, associations, community networks, etc	Empowered rural communities based on participatory structures and processes
Unequal access to information	Lack of technical assistance focusing on the needs of small-scale farmers	Small-scale sustainable production methods and consumption patterns; on-farm processing; micro-agroindustries and co-operatives	Greater ecological sustainability; enhanced economic sustainability; benefits from exchange between traditional and scientific knowledge
Vulnerability and lack of economic alternatives	Exploitation of labour force and natural environment	Enforcement of basic human rights; creative alternatives for sustainable production	Strengthened social and economic sustainability; networking including the excluded
Unequal public policies	Public policies ignore the necessities of the rural population	Participatory design, implementation and monitoring of public policies and development program	Participatory community development
Unjust distribution	Fair distribution and access to resources and opportunities among citizens, on a local to global level	Questioning distributive issues	Empowered and creative rural communities, contributing to an ecologically sustainable society

Conclusion

This case study of rural change in traditional communities in Brazil has shown that rural restructuring towards modernised agro-food production has driven the local peasant population into social exclusion, poverty and marginalisation. Before the introduction of modernised, mechanised, energy-intensive agriculture and extensive cattle ranching, and before the privatisation of communal land during the late 1960s and 1970s, smallholders were also poor, but their access to basic resources could sustain their livelihood.

Some of the major aspects of oppression can be identified in the case of the rural

population in the study area. The central ideas of exploitation (Nielsen & Ware 1997), marginalisation and powerlessness (Young 1990) apply to the situation of traditional rural peasant communities in the Cuiabá river catchment. Part of this population is exposed to severe forms of exploitation, as described in the case of contract work. The small-scale farmers are marginalised and socially excluded. They do not have sufficient means to continue in their rural communities, mainly due to loss of agricultural land to large-scale farmers, fragmentation of agricultural land among family members, lack of environmentally appropriate technical assistance, insecure land tenure, difficulties in accessing the local market, and the low prices being paid for their products.

In order to achieve ecologically sustainable, empowered, and creative rural communities based on participatory structures, distributive issues will have to be given priority in the political agenda. Since this involves distribution and equal access to resources and opportunities among all citizens, its success depends very much on the alteration of local power relations, as well as on the implementation of fair economic structures, not only on a local, but also on a global scale. Given the economic difficulties, the scarcity of public resources, and the drastic austerity measures the government is forced to institute, there remains little expectation that the changes necessary to prevent further exploitation and rural exodus towards the major cities will occur.

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Correspondence: Dr Jutta Gutberlet, Department of Geography and Environmental Science, University of Newcastle, Callaghan, NSW 2308, Australia; e-mail: GGJGG@cc.newcastle.edu.au

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