

2. The International Pilot Programme to Conserve the Brazilian Rain Forests (PPG7: 1993-2009): An approach to sustainable regional development¹⁷⁹

2.1. Introductory note

From a Brazilian point of view, the exertion of international influence and the phrase “common heritage of mankind” for the Amazonian tropical forests naturally were interpreted as conflict prone. These areas are, of course, subject to Brazilian jurisdiction. National sovereignty and the issue of the danger of a possible internationalisation of the Amazon region – sometimes played up politically in Brazil – have always been decisive factors for all Brazilian governments against international interference in the internal affairs of the country (Melo-Reiners 2009, 142 f.).

In the Amazon region, discourse dominated by international considerations and interests, the Brazilian and especially the Amazonian regional view and needs must of course be given special attention (Paul and Vieira 1993). The conservation or use of rain forests and their resources are part of national sovereignty. However, the protection of the Amazonian rain forests cannot be the sole task of Brazil but is a human task (Melo-Reiners 2009, 144) due to the magnitude and the consequences of destruction for climate change issues.

For the Brazilian population and the governments from the 1990s onwards, the search for sustainable development was of particular importance for the future viability of the country (Goodman and Hall 1990).

2.2. Situation in the Brazilian Amazon region at the beginning of the Pilot Programme

2.2.1. Inventory of the causes of rain forest destruction and necessary measures to solve the problems

The national and international discussion on the increasing deforestation in Amazônia Legal focused on the problematic development programmes of the government, the almost uncontrolled activities of private economic interest groups, the problems of the

179 This overview is based on Kohlhepp (1991e; 1992; 1995).

affected regional population, in particular the struggle for survival of the Indigenous people. Overall, environmental legislation was hardly respected and state control was still very patchy or skilfully circumvented.

The destruction of tropical rain forests and environmental damage in Amazonia was caused by mostly planned state and private activities in the following sectors:

- infrastructural measures (e.g., network of road construction; power lines),
- rapidly increasing deforestation by cattle ranches of large estate holders, combined with aggressive land speculation,
- mainly illegal wood cutting activities of sawmills and timber trade,
- extraction of mineral resources with its basic infrastructure (iron ore, manganese, bauxite),
- construction of large hydroelectric power plants with enormous reservoirs,
- large industrial complexes (alumina and aluminium industries, pig iron works etc.),
- energy production from biomass: charcoal production,
- uncontrolled spatial mobility of gold and diamond diggers (*garimpeiros*) with pollution and poisoning of rivers by using mercury in gold extraction,
- agrarian colonisation with large numbers of small-holders with slash-and-burn agriculture,
- continuous increase in spontaneous land occupation of small-holders,
- invasion of soybean cultivation into the ecosystems of Southern Amazonia, caused by the world-market oriented agribusiness,
- large agricultural and forestry projects (Jari project),
- rapid development of urban expansion of pioneer towns and their infrastructure.

Summarizing possible measures to bring a positive influence into environmental policy, socially relevant to regional planning and to territorial organisation in Amazonia, the following direct and indirect actions for the protection of the Amazonian rain forests ought to be done:¹⁸⁰

- Discourage speculative interests completely by cancellation of fiscal incentives in environmentally predatory projects, which had already been done;
- Prohibit the installation of major extensive stockbreeding projects (Hecht 1984; 1985);
- Discourage and minimize internal migration into Amazonia through special programmes, providing alternatives in the extra-Amazonian regions;
- Consolidate existing land settlement projects preventing the advance of the agricultural frontier and starting methods of ecodevelopment and agroforestry (Goodland 1989; Brüning 1989; Anderson 1990), trying to learn from the Indigenous non-predatory knowledge and methods of using natural resources (Posey 1985a);
- Stop planning of new agrarian colonisation projects;
- Provide concepts for the organisation and control of the pan-mining operations and the spatial mobility of the *garimpeiros* (Garrido Filha *et al.* 1988);

180 Cf. chapters I.1.–5.

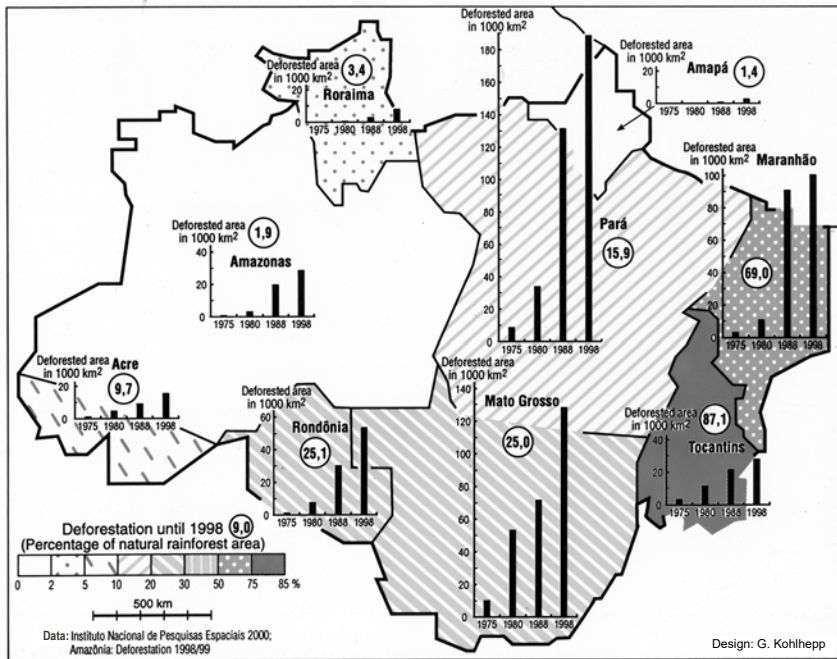
- Evaluate the environmental compatibility of major projects and determine their social relevance to the regional populations (Binswanger 1987; Goodland 1989). This should involve the instrumentalisation of objective criteria. A new type of cost-benefit analysis should fit within the context of the “new rationality” (Sachs 1980), which covers both economic efficiency and ecological effectiveness. Regarding projects thought to be economically indispensable (e.g., industry and mining) there must be a new, properly considered scale of evaluation of costs. The ecological and social costs of economic growth, both direct and indirect, need to be calculated and, as far as possible, minimised (Kohlhepp 1989b; 1990);
- The positive effectiveness of these projects must be seen on both the medium- and long-term basis. All this meant going beyond the traditional approaches of pillage, exploitation, and use, which were devoid of any commitment to the true potential. This called for a political will to make its clout felt over and above the economic lobbies (Kohlhepp 1991e, 155 f.);
- Install and protect areas for permanent preservation or preferential conservation, such as conservation units and Indigenous reservations (Constituinte 1989). This concept already existed but the reservations will undoubtedly need to be protected in a more efficient manner;
- Realize a new concept that arose in 1985 in setting up “extractive reserves,” a term for renewable resource use patterns in the tropical rain forests of Amazonia, in the areas of autonomous wild rubber tapping operations. These areas are occupied by social groups, whose survival depends on the gathering and use of products native to the forest (fruits, oils, gums, medicinal plants etc) and who have developed means of ecologically sustainable use (Allegratti 1990, 1994; Nepstad and Schwartzman 1993);
- The concept of reservation areas for extractivism – with renewable forest resources open to economic activities by traditional local populations – resembled the concept of “Indigenous reservations,” that are also protected by law for the exclusive use of the respective groups. The economic feasibility of the extractive reserves has been questioned (Homma 1994) as regards to prices, transport facilities and market conditions, and there remained doubts about the future inclination of these groups to stay within this system of traditional economy if other economic options or alternatives appear;
- Reforest degraded areas with native species, although it was well known that this is difficult to achieve (Valverde and Freitas 1980; Fearnside 1989b), using the *Floram* suggestions (IEA/USP 1990). Without suitable reforestation, charcoal production for pig iron plants along the Carajás railway was a highly predatory activity and needed fundamental revision in terms of energy supply;¹⁸¹
- Decentralise research on Amazon environmental problems to the Amazon region itself, strengthening of the regional research and environmental institutions (Lourenço 1995);
- Focusing efforts on urban planning and the reorganisation of urbanisation in order to improve the quality of life for urban populations and create new urban development models with an environmental and social basis and find solutions to adapt them to their role in a sustainable development pattern (Becker 1985 and 1995; Coy 1992; Silveira 1993).

181 See chapter I.4.2.5; Muntingh (1988); Sternberg (1988); Mahar (1989); Kohlhepp (1989a).

2.2.2. The situation of deforestation

The development programmes of the Brazilian Military Governments for the planning region *Amazônia Legal* in the 1970s and 1980s had led to a quickly increasing destruction of the Amazonian rain forests. The Operation Amazonia (1966–1970), the Programme of National Integration (PIN, 1970–1974), the Polamazônia programme (1974–1980) with the starting activities of the private sector, the “Integrated rural development programmes” of the beginning 1980s and the “mega-programmes” of the later 1980s had disastrous consequences.¹⁸² Numerous scientists had already pointed out the dangerously rapid increase in deforestation rates at an early stage.¹⁸³ Deforestation in Amazonia had already destroyed more than 10% (1975: 0.6%) of the rain forest area within 15 years, by 1990, i.e., about 410 000 km² (more than the area of Germany and Switzerland) of the 4.093 million km² total area of natural rain forests (81.3% of the area of *Amazônia Legal*) in the Brazilian Amazon region.¹⁸⁴

Figure 21. Deforestation in the Brazilian Amazon region 1975–1998



Source: Data of deforestation: INPE (1998). Regional data: calculations by the author in: Kohlhepp (1998a, Fig. 2).

182 See Volume 1 (Jan Kleinpenning) of this publication and volume 2 (Gerd Kohlhepp) chapters I.1–5.

183 Sioli (1973; 1984; 1985); Mahar (1989); Fearnside (1989b; 1990), among others.

184 Kohlhepp (1998a, Table 1): based on Skole and Tucker's (1993) calculation of the natural rain forest area of Amazonia and calculations of the author about the proportion of the deforested rain forest areas on the respective area of the Brazilian federal states in Amazonia. Data of absolute deforestation until 1990: INPE (1998).

In 1990, regional disparities in deforestation in the different states of Amazonia were extraordinarily large. While only 1.4% of the forest area had been cleared in the almost completely forest-covered huge state of Amazonas, the federal states Mato Grosso and Rondônia, suffering greatly from development pressure, already showed forest losses of 15.8% each. Pará and Mato Grosso had the highest absolute forest destruction (Fig. 21). Maranhão (64.1%) and Tocantins (75.5%) showed the highest percentage of forest losses because of relatively small rain forest areas and a high proportion of humid savannahs (*campos cerrados*: MA: 44.3% of the state area; TO: 89.1%).

The average annual forest losses in Amazônia Legal between 1978 and 1988 amounted to unimaginably 21 130 km² (area of the state of El Salvador). From 1988 to 1991 this average annual deforestation decreased to 11 130 km² (size of Jamaica), because the fiscal incentives for Amazonian investments had been eliminated. Unfortunately, this tendency to reduce deforestation could not be maintained, since the budget of the MMA had been cut in half because of the financial crisis. During the two-year period from 1992–1994, the average annual deforestation rate was 14 900 km².

According to INPE, in 1994–1995 deforested areas in Amazônia Legal reached a dizzying magnitude of more than 29 000 km² (about the area of Belgium). During the government of President Franco (1992–1994) environmental issues played only a minor role and environmental and forest protection were completely inefficient. An explanatory approach for this “explosive” increase could be found in the attempt of the main actors to clear as large forest areas as possible before and immediately after President Cardoso took office. This meant that it should be done before a reorganisation of IBAMA, feared by these interest groups as announced new laws on forest protection could be realized and lead to stronger control and severe restrictions of deforestation (Kohlhepp 1998a, 55). In the following years, deforestation decreased rapidly (1996–1997: 13 037 km²). In 1996, a series of measures was implemented by the MMA to protect rain forests. IBAMA also re-examined the forest management plans (Scholz 2002; 2007). The Cardoso government increased the protected forest share per area from 50 to 80%. The total devastation of the natural forest cover in Amazonia until 1998 was up to 13.5%. 83% of this total deforestation occurred in Mato Grosso, Pará and Rondônia.

However, not only direct forest destruction, but also the indirect consequences of human influences and measures damage the forest ecosystem. Not only has selective logging destroyed more than half of the forest vegetation per unit area, but larger clearings dry out the edges of the surrounding forest areas and lead to a sharp increase in fire risk. The same problem occurred when forest remnants in clearing areas were too fragmented, which was also relevant to the question of the critical minimum size of protected forest areas (Laurance 1998).

Production of timber in logs in Amazonia increased rapidly and in 1997 amounted to 28 million m³, 75% were extracted in Pará and Mato Grosso. Timber exports to foreign markets accounted for only 14% of the total volume, while 56% of the consumption of Amazonian timber was concentrated on the Southeast and South of Brazil (Smeraldi and Veríssimo 1999). The contribution of timber from Amazonia to Brazil's overall wood production had rapidly increased from 14 to 85% in just two decades. With the destruction of Southeast Asian tropical forests, the Amazon region was targeted by transnational corporations to be the key resource area for tropical timber in the future (Cotton and Romine 1999). Asian, in particular Malaysian companies were entering in an aggressive manner trying to get concessions for large-scale logging. Illegal timber

extraction spread everywhere (Greenpeace 1997; Amigos da Terra 1997). Logging crews severely damaged 10 000 to 15 000 km² of forest per year that were not included in deforestation statistics (Nepstad *et al.* 1999). As logging was spreading across large parts of Amazonia in an unregulated manner, zoning of timber extraction should be organised according to ecological criteria and protection from logging in specific areas must be strictly controlled (Veríssimo *et al.* 1998).

Landsat satellite images were taken on a scale of 1:250 000 and evaluated in an ambitious programme by the renowned National Institute for Space Research (INPE).¹⁸⁵ The satellite images used by the PRODES project only recorded changes in vegetation cover from a size of 6.25 ha (Kirchhoff 1992; Miranda *et al.* 1994; Krug *et al.* 1997). The forest area affected by human activities was much larger than the figures shown in the INPE deforestation monitoring programme. This was caused by forest surface fires, getting out of control. These ground-level fires that occur underneath the canopy of rain forests could not be detected by satellite, but due to their effect of drying out the vegetation they caused later larger fires.

These fires could arise when – after a drought of five months – the drought tolerance of tropical rain forests with their natural shady, moist microclimate is exhausted, the absorbed soil water is depleted and leaf fall begins due to drought stress, which leads to a layer of foliage drying out by sunlight. As a result, and due to selective logging, which is particularly exposed to the vulnerability of the forest ecosystems, the risk of unintentional forest fires increased excessively.

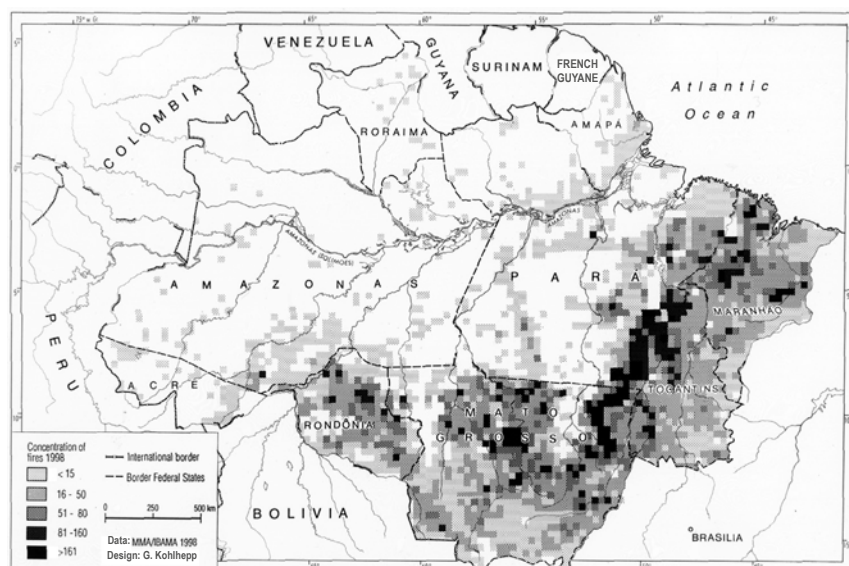
The fires close to the ground, which initially leave the treetops untouched, lead to the drying out of the trunks and – a little later – to a strong fire hazard of the entire biomass. The ground-level fires enlarged the rain forest areas affected by fires up to 60% and destroyed a high percentage of aboveground biomass, in a regionally different manner (Nepstad 1999; Nepstad *et al.* 1999). Extreme droughts in some regions of Amazonia, such as those observed in Roraima in 1998, combined with huge wildfires, will be discussed later.¹⁸⁶

The detailed evaluation of satellite images by INPE and the implementation of the results in the activities of MMA and IBAMA showed very clearly the tendency of intensified fires in the east and southeast of Amazônia Legal, particularly in the Grande Carajás region, and in the north of Mato Grosso. The fire activities along the Transamazônica, the Cuiabá–Santarém road (BR-163) and the BR-364 in central Rondônia are also emerging (Fig. 22). The concentration of fires, photographed by the NOAA satellite in 1998, gives an idea of the magnitude of burning in large sub-regions of Amazonia. The “arc of deforestation” was extending from Rondônia, via northern Mato Grosso, Southeast Pará to Maranhão, causing huge emissions of CO₂ (Fearnside 1997a, b).

185 For more than 30 years, INPE analysed deforestation in the Amazon region with its monitoring systems. Brazil began to record deforestation rates in detail annually in 1988. Landsat satellite images were initially printed on paper and the size of clearings were calculated by photo evaluation. The PRODES (Measurement of Deforestation by Remote Sensing) project was based on Landsat satellite images and later by NOAA satellite and others. Today, INPE's programmes are internationally recognised. The systems were digitised in 2003. The modernisation process of INPE and the interference of the Bolsonaro Government will be described in chapter III.1.

186 See chapter II.3.2.

Figure 22. Areas of concentration of fires in Amazônia Legal in 1998



Source: INPE (1998) (map prepared by MMA/IBAMA); published in Kohlhepp (2001b, Fig. 5).

The satellite-based radar surveillance of Amazonia, which was provided for by the much-discussed SIVAM project of the Secretaria de Assuntos Estratégicos and the military, established during the Franco Government, could also be of utmost importance for the environmental authorities if the data collected were appropriately accessible. This, especially since illegal activities of logging and slash-and-burn operations could be quickly verified, and perpetrators could be identified and punished.

2.3. Creation and main objectives of the Pilot Programme

In view of this given situation, there was an urgent need of looking for new strategies of sustainable regional development. The objective of sustainable regional development proved to be highly complex and not easy to implement in accordance with the given political and social conditions:¹⁸⁷

- The base factor of a “development from below” meant participation of all regional/local actors of the civil society in regional planning and development;
- An adjustment of land use to the local/regional ecological conditions has to be done according to the limitations of the carrying capacity of ecosystems;
- Permanent control of the process of realizing sustainable development with “popular monitoring” by the civil society would be essential;

¹⁸⁷ Sustainable regional development: Cf. Sachs (1992); Clüsener-Godt and Sachs (1995); Coy (2001; 2005).

- A stronger orientation towards endogenous potentials and “milieus” of regional/local production will be of decisive importance;
- Strengthening regional networks and local/regional economic cycles and improving the situation of social groups fighting for survival;
- Harmonizing local/regional politics with policies on other administrative levels;
- Improving the efficiency of administration;
- A re-evaluation of the regional identity will contribute to the awareness of a sustainable use of regional resources.

The International Pilot Programme to Conserve the Brazilian Rain Forests (PPG7)¹⁸⁸ was a result of the international concern about the destruction of rain forests and was based on the initiative of the German Chancellor Kohl at the Houston Economic Summit of the G7 countries in July 1990. Following the request of the G7 governments, the Commission of the European Community and the World Bank joined in cooperation with the Brazilian government to prepare a comprehensive programme to substantially reduce the deforestation rate in Brazil. The G7’s proposal to financially support the Brazilian review of new regional development models for the Amazon region, that had already started, was accepted by Brazilian authorities.

Despite all counteracting activities, new discussions on the national sovereignty and the resistance of Brazilian nationalists and economic lobbies against foreign interference in Brazilian domestic policies, the Collor de Mello government¹⁸⁹ submitted a programme proposal to the G7 countries at the London Summit in July 1991. This was just on the eve of the Rio UNCED, focused on the spotlight of the international public.

In December 1991, the programme was approved by all the countries and institutions involved, and the G7 countries, the European Union, together with the Netherlands, renewed their commitment to provide financial and technical assistance for about US\$ 250 million initially, which was later greatly increased. The objectives of the so called PPG7 programme were endorsed, the World Bank was commissioned to coordinate the programme and a Rain Forest Trust Fund (RFT) with about US\$ 60 million was established under World Bank trusteeship. In terms of project financing, the G7 countries acted as donor countries. The financial benefits were gifts and were not based on the usual lending. Germany contributed with about 50 % of the costs.

The PPG7 applied to all tropical forests of the country, i.e., also to the Atlantic rain forests (Mata Atlântica), already largely destroyed (Dean 1997), but the absolute focus was on the Amazon region. It consisted of a set of projects that should contribute to the sustainable development of natural and human resources. The overall objective was “to maximise the environmental benefits of Brazil’s rain forests consistent with Brazil’s development goals” (World Bank 1994). This had to be achieved through the implementation of a sustainable development approach.

Referring to the strategy of sustainable development, Sachs (1992) who elaborated the ecodevelopment concept (Sachs 1980; Glaeser 1984), included five dimensions of sustainability (social, economic, ecological, spatial, cultural), which go much beyond

188 The PPG7 analysis in this chapter is based on publications of Kohlhepp (1995; 1998a; 2001a; 2005; 2018).

189 With José Lutzenberger as special Secretary of the Environment in a period of transition until the establishment of the Ministry of Environment in December 1992.

the vague definition of the Brundtland Commission (1987) “development which meets the needs of the present without compromising the ability of future generations to meet their own needs.” The key issue of sustainability can be defined as “improving the living conditions of human communities, while keeping within the limits of the carrying capacity of the ecosystem” (Sachs 1992).

The goals and approaches of the regional development policies of the World Bank have changed since the 1960's. Modernisation theory and aims to catch up with the development level of industrial countries characterised the projects of the 1960's and 1970's. Growth poles, which proved their negative consequences in increasing regional disparities were replaced at the beginning of the 1980's by the poverty-oriented concept of integrated rural development, considering basic needs, participation and development from below. The environmental concept, in addition to the social relevance of projects, became predominant during the 1980's, and just before the beginning of the 1990 decade, the new paradigm of sustainable development prevailed.

Through the attainment of the PPG7 objectives, there was a possibility to provide a model of North-South cooperation on global environmental issues – global actors as the World Bank, G7 countries and the European Community with national, regional, and local Brazilian actors – and to prove the feasibility of harmonising economic and ecological objectives in tropical rain forests. Moreover, it helped to preserve biodiversity and the immense genetic resources of the tropical rain forests, as well as to reduce Brazilian carbon emissions by reducing the deforestation rate (World Bank 1994).

The Pilot Programme has been conceived as an experimental programme with the goal to introduce the sustainable use of resources and to make the results transferable to other tropical rain forest regions. It was a unique opportunity to realize the principles of sustainable development, established at the Agenda 21 of the UNCED Summit in Rio de Janeiro, in 1992.

The basic insight of the Rio Summit laid above all in the fact that the protection of tropical forests could not be limited to the spatial segregation of large forest areas. In the beginning, this had been demanded in the “puristic” ecological and nature conservation debate. With sustainable forest management and resource use, socio-economic and socio-cultural factors for the benefit of local/regional forest dwellers gained greater attention.

Protecting all forest areas without any use was and is until today an unrealistic and politically unenforceable idea in the countries concerned. However, the objective must be a resource-conserving national development policy in which the measures for the conservation and sustainable management of tropical forests are embedded. This was the goal in the preparation and implementation of the PPG7.

With the explicit emphasis on national sovereignty and the determination not to regard tropical forests as a “global good,” the traditional reservations of Brazil and other emerging and developing countries against the “global allocation” of tropical forests and against international initiatives for tropical forest protection were dismantled. This opened the way for the PPG7 to be realised in Brazil with the prospect of success.

The coordination structure of the PPG7 emphasised the central function of the new Ministry of Environment (MMA) on the Brazilian side, which prepared the projects in cooperation with some ministries (Justice, Science and Technology) and specific authorities (IBAMA, FUNAI). The World Bank had decentralised programme governance, coordination, and auditing of the process with a new department in Brasília – at the

special request of the International Advisory Group (IAG)¹⁹⁰ – where some donor countries and the EU also had their own project coordinators on the ground. In the years of preparation of PPG7, the Brazilian government had fundamentally changed the structure of its environmental policy. After many years of experimentation, a fully functional Ministry of Environment with a special focus on the Amazon region (SCA) had emerged at the federal level only in December 1992.¹⁹¹ At the regional level of the federal states, a first basis of environmental authorities had been laid in Amazonia, which were specifically improved by the PPG7 as part of decentralisation strategies (Becker 2001; 2010).

The increasing willingness of institutional actors in the national and global spheres to be flexible and to consider regional challenges with increased networking of activities in terms of content and space, had resulted in a programme that tested indicators for sustainable development under the improved framework conditions of an integrated regional policy.

Numerous innovative statements, the reduction of regional conflicts through articulation and participation of those affected, involving a wide range of local actors in a bottom-up approach, were positive features of this pilot phase. Furthermore, the focus was laid on a coordinated action of the federal government, the regional and local level and on the embedding of projects in a targeted accompanying programme of applied research.

The main objectives of PPG7 can be summarized as follows (World Bank 1993, 1994; MMA/SCA 1996; MMA/World Bank 1998):¹⁹²

- Preserving biodiversity and genetic resources of tropical rain forest ecosystems;
- Serving as a model of North–South cooperation to resolve global environmental issues;
- Proving the compatibility of ecological, economic, social objectives and environmental policy in the protection and use of the natural resources of tropical rain forests;
- Contributing to decrease emissions of CO₂ by reducing the rate of deforestation;
- Changing development strategies to a sound environmental and social concept;
- Keeping economic growth within the limits of the carrying capacity of the ecosystems;
- Protecting the living space of Indigenous populations.

190 The International Advisory Group (IAG) had been installed in 1993 as an independent international scientific commission, whose 11 members had been proposed by the World Bank, the G7 countries and the Brazilian Government for their expertise on Amazonia. There were experts from seven scientific disciplines (Forestry, Ecology, Biology, Human Geography, Sociology, Agronomy and Anthropology) and from seven countries (4 Brazilian scientists). The IAG exercised an advising role throughout the Programme, with its members being replaced after one or two 4-year periods. In numerous working sessions in Brasília and many excursions in different regions of Amazonia with detailed project analysis, proposals had been made for improving the PPG7 and the content of the projects. The author of this publication, as a Human Geographer, had been a chairman (1993–1997) and member of the IAG (1993–2001).

191 In the same month, President Collor de Mello was accused of corruption, and he resigned in December 1992 as his trial was about to begin. He was convicted in 1993 and barred from holding public office for a period of eight years. His successor was Vice-president Itamar Franco (1992–1994).

192 Ministério do Meio Ambiente, dos Recursos Hídricos e da Amazônia Legal (Ministry of Environment, MMA); Secretaria de Coordenação da Amazônia (SCA); cf. Kohlhepp (1998a).

To achieve these very ambitious objectives, the following sets of measures were implemented, which were reflected in the various projects of the PPG7:

- Strengthening federal authorities in the implementation of sustainable environmental policies, including local knowledge, with the participation of NGOs and the private sector;
- Improving the management of natural resources and of protected areas;
- Promotion of small projects of regional NGOs and dissemination of knowledge;
- Goal-oriented promotion of applied research on sustainable management.

2.4. Structure, subprogrammes and components of the Pilot Programme

In contrast to the lack of a stable concept of the military governments for the regional development of Amazonia,¹⁹³ the guiding objectives of the Pilot Programme were now in line with the declared development goals of the new democratic government (MMA/SCA 1995) and with a declaration of consensus by the affected federal states in Amazonia, which were of crucial importance in the context of the planned decentralisation of the Brazilian development policy.

The PPG7 comprised four subprogrammes which helped strengthening the institutional capacity of the public sector, consolidating, and enforcing the implementation of a sound environmental policy as well as improving the management of natural resources and protected areas, by encouraging ecologically appropriate investments, and by monitoring and controlling the environmental impacts. The first projects were approved in 1994 and implemented in 1995:¹⁹⁴

- Demonstration Projects (project proposals of NGOs),
- Applied Science and Technology,
- Natural Resources Policy Project,
- Management of Natural Resources.

2.4.1. Demonstration Projects

The so-called “Demonstration Projects” were key elements of PPG7, which had generated high expectations at the NGO level, regarding the possibilities of financial resources to promote small-scale development initiatives and direct benefit to the regional population. For the first time, an attempt has been made to approach a “development from below,” in which the local and regional population (smallholders, rubber tappers, Indigenous tribal groups, environmental protection groups) received grants and could articulate proposals in low-impact use of native forest resources (agroforestry, rehabilitation of degraded land, medicinal plants) tailored to their needs and to implement them at the municipal level. The importance of creating knowledge in agroforestry (Anderson 1990; Smith *et al.* 1996; 1998) and the dissemination of the results cannot be

193 See chapter I.1-5; cf. Kohlhepp (1987a).

194 In 1995, President Fernando Henrique Cardoso took office (1995–2002).

emphasised more strongly. The focus was on testing alternative solutions to local environmental problems.

In view of numerous previous attempts to carry out nature conservation with government-controlled initiatives, the demonstration projects were based on the granting of the necessary leeway for the projects themselves by the affected groups and special attention was placed on the feasibility of small projects.

The MMA and the NGO umbrella organisation for Amazonia GTA decided together on the allocation of funds. The financial resources – relatively small sums of an average of US\$ 140 000 per project – went directly to the NGOs through a special funding channel set up by the Bank of Brazil. Fortunately, one of the most serious impasses of the project, the formal guarantee-requirement of donor countries for the proper application of funds, could be also solved. This was absolutely new in an international cooperation.

Furthermore, a network of NGOs was supported in the project areas (Hall 1997a). About 300 NGOs are coordinated in Amazonia by the GTA which tried to build up organisational capacity, essential for the effective execution of this high-risk project. More than 600 community groups, associations of rubber tappers and environmental organisations had been key partners of the project. Fortunately, the projects had developed extremely favourably and had very positive diffusion effects. Promising initiatives such as environmental education, projects at small community level and proposals from Indigenous groups were implemented in numerous municipalities and sub-regions of Amazonia (Théry 1997a; 1997b). Workshops for the exchange of experience in different regions of Amazonia as well as training courses were particularly successful.

The appropriate marketing of products manufactured in sustainable use will become increasingly important in the future to strengthen the motivation and economic ability to survive of the groups involved, as was demonstrated in the extractive reserves. To this end, the private sector needed to be involved in a much greater extent. Germany not only contributed more than 60 % to the financing of the demonstration projects, but also in this special case exceptionally waived the false use guarantee by the Brazilian government. This was realised to implement the project, which could not give it to NGOs.

The Demonstration Projects offered a unique and innovative opportunity for a partnership between governmental and non-governmental organisations with positive spread effects for the regional population.

2.4.2. Applied Science and Technology

This subprogramme combined the need to improve scientific research on Amazon ecosystems and the sustainable use of their resources, as well as to promote the dissemination of scientific knowledge. Two well-known centres of excellence, the INPA (Instituto Nacional de Pesquisas da Amazônia, Manaus) and the Museu Paraense Emílio Goeldi (Belém), were selected to receive extra support, in order to substantially improve the regional research basis and to help recruiting and retaining researchers of the highest scientific level.

The “direct research” component for problem-oriented research enabled highly qualified scientists of the Amazon region to apply for funding, the projects being se-

lected by a Brazilian Scientific Evaluation Commission on a transparent competitive basis. More than 100 projects with a specific innovative approach had been approved in the first period of the subprogramme. There were three research priorities: Amazonian ecosystems' structure and function, sustainable natural resource management, combined with the recuperation of degraded areas and socio-economic as well as cultural systems in man-environment relations. An attempt was made to achieve an even more direct orientation of research projects towards the needs of the affected regional target groups and the region-specific challenges to strengthen the long-demanded scientific contribution to sustainable regional development in Amazonia (Kohlhepp 1987e).

Several G7 countries participated in this subprogramme with associated bilateral projects, which were concentrated on tropical ecology and environmental research. Projects of the German-Brazilian scientific and technical cooperation within the framework of the SHIFT programme (Studies on Human Impact on Tropical Forests and Floodplains in the Brazilian Tropics) (Kohlhepp 1997a; BMBF 1998)¹⁹⁵ were understood as a German contribution¹⁹⁶ to this subprogramme and were closely tied to the objectives of PPG7 in terms of content. It was focused "on the assessment of the impact of human activities on tropical ecosystems and should contribute to the development of sustainable land use systems in tropical regions, in which progressive destruction of the environment and, as a consequence, disturbances of large-scale climate occurred" (Lieberei and Salati 1998). Furthermore, it contributed to the aims of the UNESCO research programme Man and the Biosphere. SHIFT was an interdisciplinary, multi-institutional programme pretending to link basic and applied research to contribute to the solution of major environmental problems in the tropical forests and floodplains of Brazil. In a series of intensive SHIFT workshops in Brazil and Germany, research results were presented and discussed. Representatives of the politically responsible authorities of the Brazilian Ministry of Environment and project coordinators of some of the donor countries also participated. German and Brazilian scientists wanted to transfer the results to the PPG7 projects, which were in preparation at the time.

195 The SHIFT programme (CNPq/MMA/IBAMA – BMFT/BMBF, 1990–2002) was the largest bilateral research programme of the two countries. Focus was on the Amazon Basin (Eastern and Central Amazonia, *Várzea*), the floodplain of the Pantanal and the catchment area of the Upper Rio Paraguai in Mato Grosso. A wide range of scientific disciplines and dozens of Brazilian and German universities and research centres were involved. Many scientists on both sides owed their career to SHIFT. Outside the Amazon region, the forests of the *Mata Atlântica* had been part of this research programme in tropical ecology. SHIFT's scientific yield was exceptionally good, as evidenced by numerous publications, including high-ranking research results. One example is the successful cooperation between the UFMT in Cuiabá and the chair of Human Geography at the Latin America Research Centre of the Institute of Geography at the University of Tübingen, which has resulted in numerous dissertations (cf. Kohlhepp 2017b; see chapter II.8.2). Scientific programme coordinators of SHIFT were Eneas Salati (São Paulo) and Wolfgang J. Junk (MPI-Plön/Germany). Another German-Brazilian research programme in the Amazon region dealt with Mangrove Dynamics and Management (MADAM 1995–2005), i.e., sustainable management of mangrove forests and its resources in the Belém coastal region.

196 See the publications of the German Ministries BMBF (1995) and BMZ (1998).

2.4.3. The Natural Resources Policy Project (NRPP)

This subprogramme integrated four projects dealing with national resources policy: institutional strengthening of the state environmental entities in the nine states of Amazonia, zoning, monitoring, and control activities. The project had the objectives to strengthen the policy analysis and the implementation capabilities of the entities, dealing with environmental management, at the federal government, state, and municipal level. The active participation opportunities of the regional and local population played a special role. The aim was the permanent resolution of conflicts of interests and the coordination of PPG7 with the regional and environmental policy planned for Amazonia.

In addition, the concept of the so-called “zoning” was put to the test. To this end, an extensive methodological discussion took place,¹⁹⁷ with doubts remaining on the methodological approach. The priority of drawing up an information system on the basics of spatial planning in the sense of strategic planning proved necessary. The zoning project consolidated the results of the ecological-economic zoning study, carried out by the Brazilian Institute of Geography and Statistics (IBGE), in order to establish a system of territorial information for critical areas in the Amazon region. Existing land tenure and land use problems made the transfer of the results of zoning an emergency case and an important political instrument. Zoning and legislative measures have to be linked, in order to establish a clear basis for state and municipal authority actions, as to what purpose such zoning should be used for. The risk of misuse and the risk of being ecologically and socially counterproductive has to be seriously considered.

Integrated environmental management projects were based on a governmental environmental plan that must define problems and carry out strategic actions in priority regions to solve the problems. Only in a further step, land use planning can be carried out for critical regions with the participation of all stakeholders. This certainly entailed risks in the implementation but was indispensable for the realisation of spatial planning measures. The ministries of environment of the Amazonian states Acre, Pará, and Amazonas were supported in the implementation of the projects by experts from the German Society for Technical Cooperation (GTZ).

2.4.4. Management of Natural Resources and Conservation Units

The very ambitious, comprehensive, and complex subprogramme consisted of a group of important basic projects that should contribute to the sustainable use of natural resources and thus to consolidate Brazil's environmental policy. Conservation units are areas legally established by the government, in order to meet the needs of protection and sustainable exploitation of biodiversity.

This subprogramme covered the following components:

- Demarcation and protection of Indigenous people and territories (PPTAL);
- Establishment of Extractive Reserves (Resex);

197 Ab'Sáber (1989; 1995); SAE (1991); Schubart (1994); Kohlhepp (1995); Nitsch (1996); Becker and Egler (1997); MMA/SCA (1997); Mahar and Ducrot (1998); Mahar (2000); Mello (1997; 2000); Mello and Théry (2001).

- Sustainable management of forests and support measures for forest administration (Promanejo);
- Management of natural resources in floodplain areas (ProVárzea);
- Establishment of “ecological corridors” (parks and reserves);
- Monitoring and control of slash-and-burn operations (Prodesque).

The demarcation and protection of Indigenous people and territories was one of the long-planned projects, controversially discussed in domestic politics and highly sensitive (Kasburg and Gramkow 1999).¹⁹⁸ Priority was given to the survival and protection of the Indigenous people living in rain forests and the safeguarding of their habitat, cultural identity, and ecologically adapted forms of economy. When the project was started, the number of Indigenous people living in the Amazonian forests was estimated of about 300 000. The key programme components were the identification, demarcation, official recognition, and registration of Indigenous territories, securing the Indigenous peoples legal rights to their land, accompanying studies and training measures as well as support of the implementing agency FUNAI.

The Integrated Project for the Protection of Indigenous Peoples and Lands in the Legal Amazon (PPTAL), implemented by FUNAI, was the result of a partnership between the Brazilian government, the German government, and international technical and financial support agencies, such as the United Nations Programme for Development (UNDP) and the World Bank. The project was designed as an open programme in cooperation with the German GTZ and largely financed by Germany.

The PPTAL encouraged the participation of Indigenous communities and organisations through support for monitoring projects for demarcations in progress and surveillance plans for lands already demarcated. It also provided support for training actions related to territorial management and protection by the Indigenous peoples.

When the project was included in the PPG7 in 1994/95, only about half of the 416 Indigenous territories recognised by FUNAI had been legally secured. The total area of the Indigenous reservations officially covered about 21 % of the area of Amazônia Legal, often hardly protected. Since the beginning, the legislation of Indigenous territories has been extraordinarily complicated and required the formal steps of identification, definition of boundaries, demarcation, and homologation (official registration).

In the PPG7, 115 areas of about 47 million ha were demarcated with funds from the PPTAL. The work included the opening of aisles in the forests, the setting of border markers and finally the preparation of the entire process of legislation. In addition, identification and studies of cartographic determination were carried out in 70 new areas and the identification was completed.

The implementation of the project was in the hands of FUNAI, which could count on the support of GTZ and some NGOs. Since the appeals filed under Decree No. 1775 of 1996 against the recognition of Indigenous reservations had been rejected by the Ministry of Justice, it was hoped that further delays in the project could be avoided (Kohlhepp 1998b). In November 1997, another 8.7 million ha were registered as Indigenous reservations.

The identification and demarcation (May 1998) of the Indigenous territory Javari on the border of Peru, with 8.3 million ha the largest and perhaps least known Indigenous

198 See chapter 1.3.2.

area in the west of Amazonia, was very important for securing this area. The participation of tribal groups in the border markings of the Indigenous areas made the demarcation procedures more efficient and cost effective. The monitoring of the control of the reservations contributed to a higher success rate. The Indigenous people had used the natural resources of the tropical forest ecosystems for a long time without causing environmental degradation. The tribal groups' special knowledge of the regional natural resources (Posey 2000) was considered fundamental for the sustainable use and management of forest resources.

Fig. 23 shows the legal situation in 1998 of all Indigenous territories within the PPTAL. Very large Indigenous areas are located in the north and west, on the borders with Surinam, Columbia, and Peru, which were – as many other similar areas – decisively promoted in the PPG7 programme and looked forward to final demarcation or homologation. However, this map does not yet say anything about the state of border security of the reservations and about the conditions of the increasing expansion pressure of the economic actors in Amazonia.

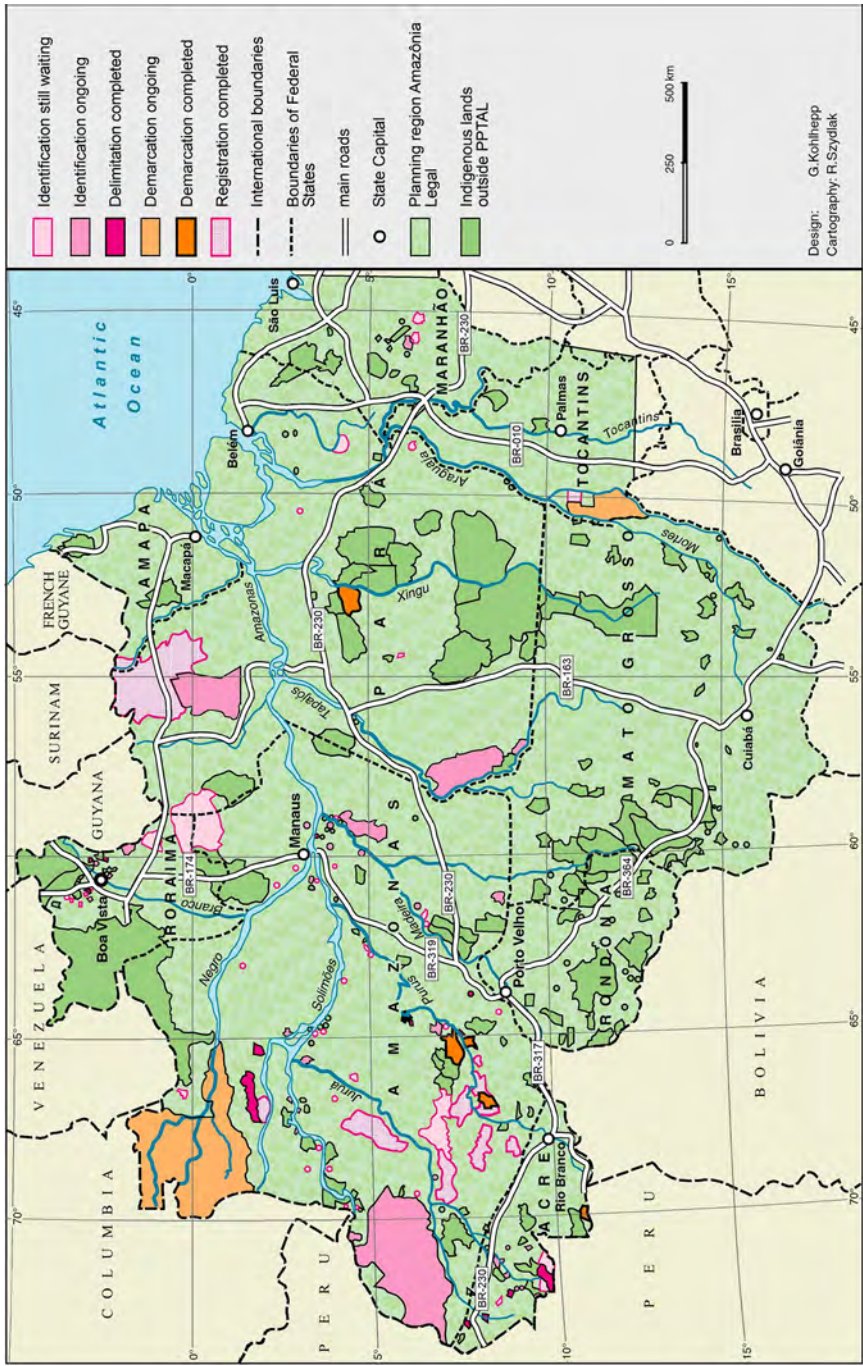
Despite conservation of natural resources in the Indigenous territories and thus the protection of the living space of these groups, the dangers of degradation and loss of native knowledge could not be completely ruled out. Added to this were the modern goals of commercialisation of natural resources (e.g., the sale of wood) by the younger Indigenous generation.

The protection of Indigenous territories and their inhabitants was extremely necessary in order not to continue exposing the vulnerable groups to the development pressures of modern Brazil. The project was a milestone in the never-ending story of discussions on the need of reservations or questioning their demarcation, or even the recurring ideas of a hasty integration of the Indigenous tribes into the world of neo-Brazilian economic interest groups.

The PPG7 tried to help the Brazilian government financially and technically to demarcate the Indigenous areas and to protect them with the active participation of the Indigenous population. The necessity to include a boundary enforcement component in this project was based upon the fact, that the spatial, physical, and cultural integrity of the Indigenous groups was threatened (Kohlhepp 1998b; Pasca 2004; Heck *et al.* 2005). Since the demarcation of these reservations is anchored in the Brazilian Constitution and half of the Indigenous territories had not yet been demarcated, there was an urgent need to speed up this process. One of the most serious problems was the resettlement of non-Indigenous squatters and the prevention of invasions by large landholders, *garimpeiros*, and timber companies, as the information of the planned activities could encourage the invasion of the areas to be demarcated. To clarify the situation, studies were undertaken of more clearly defining the scale and nature of the non-Indigenous occupation of reservation areas and thus also to ensure that isolated tribes that had not yet been contacted could continue to be protected.

The international financial resources available made it more difficult for objections of state governments and private actors to disrupt and for fiscal arguments to cancel or postpone this project. The PPTAL contributed decisively to the rapid identification and demarcation and for a better knowledge of the areas inhabited by Indigenous tribes. Field work in more than 180 Indigenous areas was executed and the project could be completed very successfully (Gramkow 2002).

Figure 23. Legal situation of Indigenous reservations in 1998 in the PPG7 project Indigenous Lands (PPTAL)



Source: Maps and documents of FUNAI and GTZ; published in Kohlhepp (1998a, Fig. 5).

The project demarcated 50 % more Indigenous territories and registered 40 % more than originally planned. While deforestation in Amazônia Legal had increased rapidly and in the forest-covered states of Mato Grosso and Rondônia already amounted to well over 20 % of the natural forest area, the degree of deforestation in Indigenous reservations was only 1.5 %, which underlined the importance of protected regions. This strengthened the hope that the prevention of forest destruction would then continue in protected regions without foreign support and without delays. The efficiency of PPTAL was reduced by the long period of 15 years for implementation, originally 6 years had been planned. This could be attributed to logistical problems in the execution of this project in regions of difficult access in Amazonia, the cumbersome bureaucracy, and the lack of qualified employees at FUNAI.¹⁹⁹

The project was extremely sensitive to nationalistic political trends, but progress in demarcating and protecting Indigenous reserves could no longer be postponed. However, the allocation of land for Indigenous reservations has remained a permanent and highly controversial topic to this day.²⁰⁰

Improving the management and the conservation of the rain forest by “promoting sustainable social, economic and environmental management methods based on the knowledge and traditional practices of the local Amazon population” (World Bank 1994) was the main objective of the establishment of the “Extractive Reserves” (Resex) project. An extractive reserve is an area used by traditional populations whose livelihood is based on extraction and subsistence agriculture. The establishment of extractive reserves intended to grant the non-Indigenous population of the rain forest a permanent collection right of use, without felling trees. The families have been living there since the rubber boom in the late 19th century for over 120 years.

Despite their official name, extractive reserves are multiple-use areas that included extractive as well as small-scale agricultural activities. The economic viability of these groups could not be assured by rubber extraction alone. The forest dwellers extracted different non-timber forest products (latex, fruits, palm pulp and fibres, resins, nuts) and engaged in subsistence agriculture (in a very limited area), hunting, fishing, and the processing and hopefully a well-prepared marketing of non-timber products (Assies 1997). The basic objectives are to protect the livelihoods and culture of these people and to ensure sustainable use of natural resources. The new approach to developing the concept of extractive reserves²⁰¹ aimed to realise an intensification in the direction of agroforestry (Fearnside 1989e), an idea developed by the National Council of Rubber Tappers and its advisors.

The idea of extractive reserves is said to have originated in 1985 at the first national conference of rubber tappers in Brasília. This meeting formally united tappers and environmentalists who were interested in saving the Amazonian rain forest. The rubber tappers’ movement was led by Chico Mendes, who faced death threats by cattle ranchers and timber companies and was ultimately murdered in Xapuri (Acre) in 1988.

In extractive reserves, the land is owned by the federal government, the land and its resources being leased to traditional dwellers. The land cannot be sold or used for non-forest activities. The administration of these areas was in the responsibility of

199 Information by KfW in Ex-Post Evaluation Brief of PPTAL in 2013.

200 See chapters II.7.2 and III.3.

201 Allegretti (1990; 1994), among others; Clüsener-Godt and Sachs (1994); Emperaire (1996).

IBAMA, together with local communities. The objective of such a partitioning of land ownership was to eliminate land speculation and conflicts as destabilising factors for extractivists.

Rubber tappers and Pará nut collectors should be enabled to an ecologically sustainable, socially acceptable, and economically viable use of resources. Protection against forest destruction, legal safeguarding of their living and economically used area, strengthening of local communities and conservation of biodiversity were key objectives. Already in 1980, about 68 000 rubber tapper families had been counted but the number may have been much greater. They occupied 4–7% of the area of Amazônia Legal at a density of 300 to 500 ha per family, i.e., 1.0–1.7 persons/km². Families have the right to tap in their traditional collecting areas within the reserves (Fearnside 1989e).

The main components were land regularisation according to the legal basis of the Constitution of 1988 and organisational requirements for implementation, community organisation, improvement of productive activities and training for project management. The main problems were lack of sufficient land for the reserves and the need of migration to urban settlements, as had been the case in Rondônia.

The concept of extractive reserves and settlements has been subject of active debates. Extractive reserves are only one more element for rain forest conservation and development, but one of the few in which local communities have played a major role. In 1990, four extractive reserves had been established: in Acre Chico Mendes and Alto Juruá, in Rondônia Rio Ouro Preto and in Amapá Alto Cajari, with a total area of 2.2 million ha. In the Resex project the implementation was organised and in the remaining 1990s some smaller reserves were installed in Rondônia and more reserves in Mato Grosso, Pará and Maranhão. Until 2004, about 60 federal and state extractive reserves were created and the regularisation and demarcation of 2.1 million ha of land destined for extractive reserves had begun (MMA/PPG7 2009).

The Chico Mendes extractive reserve (0.97 million ha) was the first and largest reserve, created in 1990 and today administered by the Chico Mendes Institute for Biodiversity Conservation.²⁰² The reserve is named after the assassinated rubber tapper and environmentalist Chico Mendes. Struggling to protect their livelihood against cattle ranchers, miners, and land-hungry settlers, the tappers had formed cooperatives.

The idea helped to consolidate support for rain forest protection in Brazil and abroad. NGOs embraced the idea, as did politicians, human and cultural rights groups, and ecologists. In other Latin American countries, where tropical forests formerly had been preserved as national parks and Indigenous reservations, new campaigns were inspired by the Brazilian model.

The project of sustainable management of forests and support measures for forest administration ((Projeto de Apoio ao Manejo Florestal Sustentável na Amazonia, Pro-manejo) was a pioneer project which aimed to promote the sustainable production of timber and non-timber forest products as a contribution to regional development. This project component, financed mainly by Germany, only started at the end of the 1990s. It was planned to use a broad concept of sustainable forest management, considering

202 The objective of the Chico Mendes Institute is to protect the Brazilian natural heritage and promote the environmental development. The Chico Mendes Institute of Biodiversity Conservation (ICMBio) is an autarchy and was created in 2007.

social, economic, and ecological benefits with a large diversity and scope of productive activities.

After the failure of government initiatives to diminish predatory forms of forest exploitation, forest certification based on environmental and social standards emerged in 1997, promoting sustainable forest management. Among the certification initiatives, the Forest Stewardship Council (FSC) gained significant recognition.²⁰³ At that time, only a very small number of companies had received the FSC seal of certification in Brazil. Only one was an Amazon timber producer, a Swiss-owned company in the state of Amazonas, operating with management of natural forests (Smeraldi and Veríssimo 1999). The demand for certification depended on the awareness of the final timber consumer and the international trading and market regulations.

In view of the increase in Amazonia's participation in world hardwood trade from 2 % in 1989 to 8 % in 1995 and a boosting international pressure on timber resources, the promotion of innovative methods in the forestry sector were of greatest importance. Reforms in forest management and forest policy, the testing of techniques for careful and participating forest management in the Tapajós National Forest with the involvement of NGOs and the implementation of "social forestry" (IEA/USP 1990; Ab'Sáber 1995) activities were planned to be realised with actively involving the local communities.

Selective wood-cutting in connection with the term sustainability is a highly controversial conflict in forestry (Burger 1991; Brünig and Poker 1991). Moreover, it is highly doubtful whether this type of use will be possible in the long run under pressure of economic interests, as secondary forest destruction is high and there was only little knowledge about growth rates of tropical timber. It was clear that in future export of tropical timber certification will be a fundamental condition.

Of the other components of the project, the management of natural resources in floodplain areas (Projeto Manejo dos Recursos Naturais da Várzea, ProVárzea), which aimed at the sustainable use of the natural resources of the *várzea* areas (Sioli 1968; 1973; 1983; 1984; Sternberg 1998 [1956]; Junk 1989; Junk *et al.* 2000) with a focus on fishery, deserved special attention. This has given economically viable alternatives to slash-and-burn farming to the riverside population. The initial project proposal was submitted by IBAMA. With this project, the PPG7 enabled the training of community leaders to develop the management of lakes and training in monitoring agreements on fishing. These experiences of environmental management originated from social pacts on the use of natural resources with local communities and representatives of civil society organisations. One of the most important components was support for promising initiatives for the sustainable management of *várzea* resources.

In order to secure forest protection zones, the ecological corridors project was another key component which started in 2001. An ecological corridor is a large geographical area where coordinated biodiversity conservation measures are implemented in priority areas. Focus was given to two corridors: five large areas in Amazonia and two in the Atlantic Forest. In Amazonia, the project was carried out to integrate existing protected areas (conservation units, private reserves, Indigenous reservations) into a concept of ecological corridors and thus to create a regional network of

203 The Forest Stewardship Council (FSC) is an international coalition of environmental, social, and private-sector organisations for the promotion of sustainable forest management through voluntary certification (<http://www.fsc.org>).

larger areas for the protection of biodiversity, overcoming natural or man-induced barriers, enabling the dispersal of animal and plant species. The central corridor of Amazonia (52 million ha) was located mainly in the state of Amazonas, connecting the hydrographic basins of Rio Negro, Rio Solimões and other large rivers and integrating 55 protected areas (federal, state and municipal conservation units and private reserves) and 65 Indigenous reservations. From the scientific point of view this was an intact, biologically important, and high-priority corridor (MMA/PPG7 2009), covering theoretically 75 % of the region's biodiversity within one third of the forested area (Hall 2000, 102).

The ecological corridors included a variety of protected areas, the buffer zones and linkages between the areas. Effective conservation of biodiversity in protected areas within the corridors should contribute to strengthening the protected areas and stimulating natural resources management by local populations. The complex project was planned to be implemented in two phases. Conservation policies in Amazonia²⁰⁴ were confronted with a series of problems in allocating scarce resources, but a new legislation, approved in 2000, created a broad range of conservation options in the National System of Conservation Units (SNUC) with the intention to ensure the consolidation of protected areas. The existence of these areas generated benefits for the society through “environmental services”: good water quality, protection of soil and mitigation of the consequences of climate change. The contribution of PPG7 to the setting up of a new conservation policy has been significant.

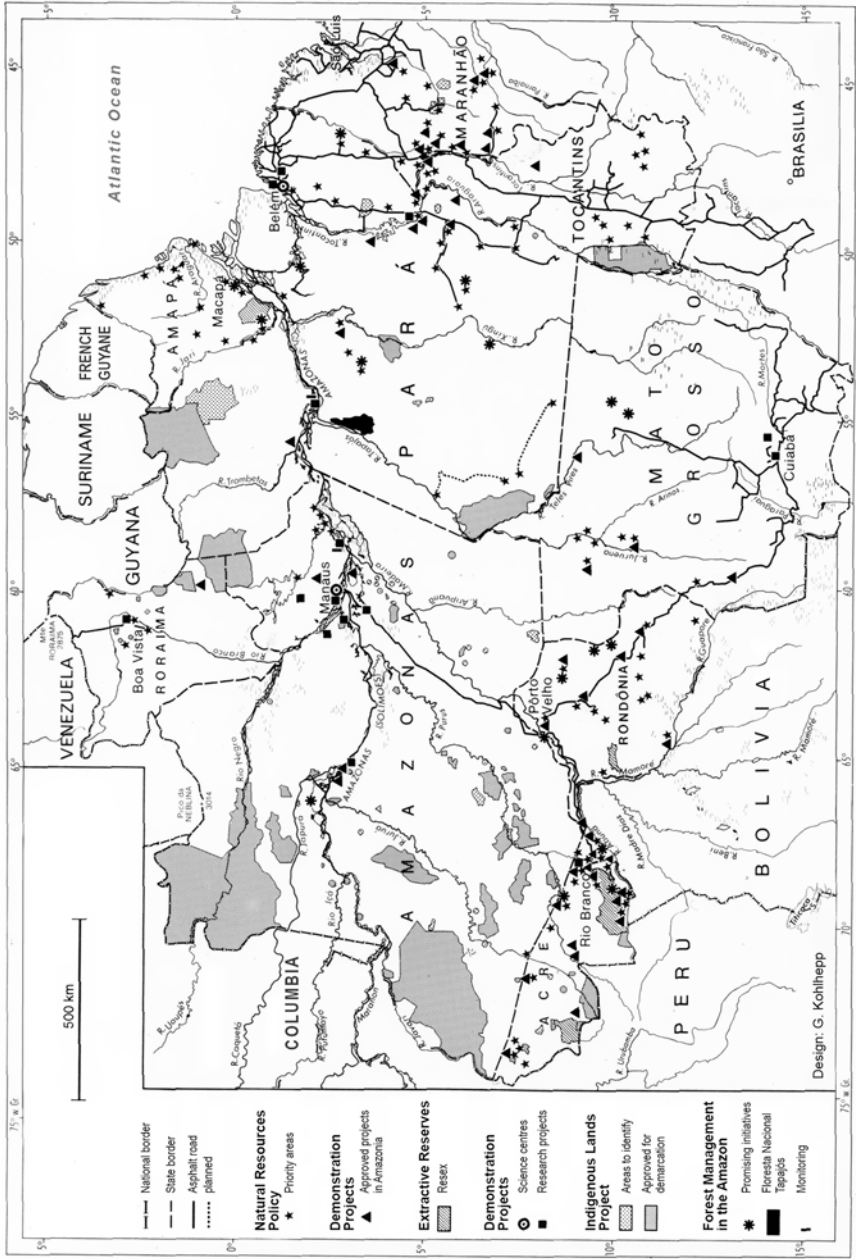
The situation of slash-and-burn operations at the time had prompted the MMA and the World Bank to focus an originally planned project for the reuse of degraded areas on a project of measures to control slash-and-burn and forest fires (PRODESQUE). The focus should be on monitoring and, at local level, on the development and application of methods to monitor illegal logging, forest destruction and fires (Nepstad *et al.* 1999) in the priority zones of the National Resources Policy Project. The project was designed to assist federal, state, and municipal environmental agencies to develop a unified system of monitoring and surveillance for deforestation and illegal fires.²⁰⁵

In mid-1998, a project for monitoring and analysis (AMA) of the PPG7 was started, in which a systematic study of each project was carried out in order to evaluate the results and promote the diffusion of knowledge acquired. With fast feedback, the Pilot Programme and its subprogrammes and components became more transparent and, at the same time, the ability to implement the “lessons learned” and the extensive circulation of results obtained by the project were subject to critical analysis by all actors. This was carried out in cooperation with the International Advisory Group (IAG), which for the first time in this form and on behalf of all participants analysed the concept, progress in the programme, and evaluation of projects in an international environmental programme.

204 In addition to the Pilot Programme, the World Bank mobilized grant funding for conservation activities through the Global Environmental Facility (GEF), i.e., the National Biodiversity Project (Probio) and the Brazilian Biodiversity Fund project (Fundo Brasileiro para a Biodiversidade, Funbio), approved in 1996 (Redwood III 2002, 19).

205 In 1998, the World Bank assisted IBAMA and other state and municipal environmental agencies and local communities through a Programme for Prevention and Control of Forest Fires in the Deforestation Arc (Proarco) through a loan of US\$ 15 million and a parallel US\$ 2 million grant for the Prodesque project of the PPG7 (Redwood III, 2002).

Figure 24. Pilot Programme (PPG7): Approved projects in Amazônia Legal in 1996



Source: MMA/SCA (1996); Théry (1997a); published in Kohlhepp (1998a, Fig. 6).

The PPG7 subprogrammes and component projects were located in all the states of Amazonia, so that there were favourable conditions for the establishment of a network of projects regionally, ecologically and socially adapted and linked with the local and regional actors of the Amazonian population.

Investments in the Pilot Programme (PPG7) totalled US\$ 463 million. Germany had taken over 50 % of the total costs, the EU (excluding Germany) 12 %, Brazil took over

11%, mainly costs of personnel. NGOs contributed with 7% to the financing and the Rain Forest Trust Fund with 20%.²⁰⁶

2.5. Evaluation of the PPG7: the most important results and deficiencies

The PPG7 was an extremely complex programme, and its experimental nature gave an exemplary stimulus to a learning process in sustainable development at international, national, regional, and local levels (Becker 2001). It showed a unique possibility to stimulate the authentic participation of local communities in decision-making in the resource management strategies. “The PPG7 acted as a catalysing force for sustainable development processes” (Scholz and Schöenberg 2007, 115).

During the 1990’s, Brazilian governments after long inner struggles with economic lobbies made up their mind to realise the Pilot Programme to Conserve the Tropical Forests of Brazil and to install the Ministry of Environment and the Legal Amazon (MMA). The change in development strategies had been one of the basic guidelines of a hopefully announced new regional policy for Amazonia, after ecological and social disorder having prevailed in some Amazon regions over the past 30 years.

In a difficult beginning, the various actors of the PPG7, the Brazilian Government, the representatives of the donor countries and their financing and technical authorities and a new department of the World Bank, transferred to Brasília, first had to get to know each other. The exchange of different arguments resulted in an intensive and fruitful cooperation in the projects’ complex preparation.

The enormous administrative difficulties with coordination problems of different legal systems, complicated approval procedures on all sides of the partners and a new process of financial transactions²⁰⁷ were greatly underestimated at the beginning. This was then reflected in the running times of preparation and execution of the projects. In addition, the realisation of the projects had to be carried out with enormous preparatory work in a huge region that was hardly known in detail and difficult to access. A few years earlier, such cooperation between Brazilian government authorities and co-deciding foreign institutions would have been unthinkable.

It would have been better to install the independent multidisciplinary scientific International Advisory Group (IAG) at the moment of the political approval of the PPG7, in order to discuss the project mixture at the very beginning and to give some advice to the selection process of projects and to specific regional, ecological, and social priorities. Thanks to the excellent cooperation of Brazilian and foreign scientists in the IAG and their expertise and empirical experience through many years of research in Amazonia, respected by all participants, the responsible actors of the coordination unit for

206 Information of MMA and World Bank in: MMA/PPG7 (2009, 56).

207 Here an example: Payments are subject to budgetary obligations for a given financial year. The fear, that in the case of controversial projects (e.g., the Indigenous project) deliberately delayed planning and execution would expire funding from donor countries, could be solved positively. The German Minister of Finance, having been informed by the IAG, exceptionally unlocked appropriations committed to the financial year. As a result, these funds now were permanently available and increased the pressure on the Brazilian side of implementing the project.

Amazonia of the MMA, of donor countries and the World Bank frequently could be convinced by IAG's proposals.

Unfortunately, some important ministries, agencies, and institutions, dealing with the problems of the Amazon region, did not participate in the programme (Ministry of National Integration, Ministry of Agrarian Development, etc.).

There was no close interaction between the PPG7 and the Brazilian policy of investments in the sectors of agriculture, transport, mining, energy, and urban development. There was a lack of specific impulses to a poverty-oriented regional policy for Amazonia. The private sector – except for the NGOs – at the beginning was not integrated into the programme planning and implementing structures.

There was a wide range of possible topics within the scope of sustainable development proposals for the PPG7. Unfortunately, some complex problems were not or not sufficiently considered, such as the urban problems in an “urbanized forest region” (Becker 1995; Coy 1992; Browder and Godfrey 1997). The same applied to the nutrient potential, land use and natural resource management in the *várzea* areas or the economic activities of some regional population groups, such as gold diggers, small-scale farmers, the riverine population, fishermen and workers in commercial homework.

Conceptual weaknesses remained, such as the exclusion of smallholders' problems, those of urban environment, the issues of poverty-stricken people and the findings of scientific research in the SHIFT programme. NGOs were more likely to do pioneering work (Hall 1997a; GTA/FOE 1994; 1996), such as Poema with the help of the Daimler Benz AG in the surroundings of Belém and on Marajó Island (POEMA 1994).²⁰⁸

It turned out to be extremely important, that the overall programme concept should have interactions of sustainability components, a strategic vision of integration of the various projects with each other and into a clearly defined regional development strategy. The new regional policy of the Brazilian government for Amazonia (MMA/SCA 1995; MMA/CONAMAZ 1998) would have to reduce the previous shortcomings in the coordination of the PPG7 with important sectors of agriculture, among other sectors already mentioned and with the real political-economic framework conditions (Scholz and Schönenberg 2007). The traditional colonisation schemes of INCRA with the settlement of people in precarious conditions was counterproductive to the efforts of PPG7. In particular, the explosive problem of landless people (MST) could not be resolved with a disorganised settlement in Amazonia.

The regional state governments did not participate in the initial planning process and the information policy on the PPG7 came only very slowly to the regional and municipal levels. Parallel planning measures to solve problems affecting Amazonia outside the Amazon region did not exist.

208 Poema stands for Poverty and Environment in Amazonia Research and Development Programme. In the beginning of the 1990s, the University of Pará launched Poema on the island of Marajó with the aim of combining measures to protect the Amazonian ecosystem with initiatives to combat poverty. Among other projects, the uses of coconut fibres for the head restraints of the drivers' seats in trucks were realised. The university's venture was supported by Daimler Benz. Willi Hoss was works council at Daimler Benz in Stuttgart, member of the German Parliament and later active as an environmental activist. He contributed to the success of this cooperation.

Progress with the execution of the programme had been considerably slower than was originally hoped and caused criticism.²⁰⁹ The main challenge was the need of a maximum of administrative flexibility on all parts and appropriate funding mechanisms. Approvals for international financing for PPG7 projects had been severely delayed during the Franco government. The credibility of this innovative programme depended on all the participants making a concerted effort in concentrating on key issues.

Although the PPG7 comprised an amount of nearly half a billion US Dollar, this was only a small percentage of the “normal” official investments in Amazonia. Furthermore, some of the G7 countries – especially the US – had only contributed to a very small extent to the RFT and the total costs of PPG7.

Since decentralisation allowed Amazon state governments to shape environmental policy at least partly according to their own goals, the activities and statements of the Amazon state governor caused considerable unease. While his “strategic plan to develop Amazonas” (Planamazonas) in 1994 still concentrated on major projects, the “Carta dos governadores da Amazônia”, signed in March 1995 by the new governors, emphasised the new development paradigm of a sustainable development and was related to an action plan. This document demonstrated a strong political will for a national dialogue and a national consensus in environmental policy.

The implementation of sustainable development projects will be impossible without a strong effort for recuperation of popular local knowledge, accumulated by Indigenous people and *caboclo* riverine population. It has been a challenge for the Brazilian government to prove that the resolutions of the 1992 UNCED Conference are reflected by a new pattern of regional development and that their integration into the framework of the Pilot Programme is socially and environmentally sustainable.

Summarizing the most important positive results of the PPG7:

- The PPG7 was oriented to maximise the cooperation between government institutions and civil society – completely non-existing during more than 20 years of military dictatorship – and improving the public awareness of environmental consciousness;
- One of the main PPG7 contributions was strengthening the environmental institutions and building up social capital interactions from public agencies to civil society, and the private sector (Jordão 2022);
- Decentralisation of environmental management in priority areas of Amazonian states with capacity to elaborate state-controlled environmental policies;
- Evolution of a concept of joint management, with public-private-partnership between government entities and the different groups of civil society (active networks of NGOs);
- So far unknown negotiations between government, civil society and the private sector were enabled, aiming at the formation of political deals for the benefit of sustainable development (“Agendas positivas”);

209 Critical programme analysis only makes sense after a certain period of time and in knowledge of all programme and project levels with regard to monitoring success. The assessments of FASE/IBASE (1993), Fatheuer (1993); Hagemann (1994) were published when the first five projects – after the signing of grant agreements – were entering the implementation phase or were still in preparation.

- Implementation of “Demonstration Projects”, with the intention to generate income, strengthening of a basis of subsistence for the affected regional population, sustainable use and conservation of natural resources. This enabled creating management ability in local communities, that had been completely forgotten by the government for a long time;
- Improvement of the security of the habitat of the Indigenous population, demarcation and protection of their territories and a dissemination of the traditional knowledge of these groups;
- Development of innovative methodologies of monitoring and control of deforestation.

The obvious deficiencies of the PPG7:

- The elaboration of a group of individualised projects – according to sectoral demands of government institutions – made it difficult to prepare and implement a consistent strategy of the PPG7. This shortcoming was criticised right at the beginning by the IAG, as well as the non-participation of some important ministries, which was justified by the government with initial organisational problems;
- The articulation between the components of the PPG7 and other government programmes was fragile, including with other MMA programmes (Scholz and Schönenberg 2007);
- Some important ministries were not directly involved in the first phase (Ministry of Agrarian Development, Ministry of National Integration etc.), without this being convincingly justified;
- Urban problems were excluded in PPG7, although Amazonia was considered an urbanised forest region;
- Most of the problems of small farmers, tenants, and settlers without land title (*posseiros*) were not considered (land issues, technical assistance in small-scale agriculture, infrastructure for small-scale production). The potential for reapplication of demonstration projects of sustainable production through rural credit programmes (e.g., the National programme to strengthen family farming, PRONAF) has been little used;
- Results of the scientific SHIFT programme have only been directly incorporated to a relatively small extent into the projects to be carried out;
- The reduction of deforestation rates has not been achieved during the first phase of PPG7.

The pilot phase of PPG7 (1993–2001) aimed at maximising environmental conditions in the Amazon by intensifying cooperation between and among government institutions and the civil society. Reflections on the continuation of the programme in a second phase were strengthened in 2001. Donor countries and the World Bank attached particular importance to the inclusion of other ministries in the programming. As there was still sufficient uncalled funding, after the mid-term review the participants agreed to extend the Programme until 2009. This decision was linked to the aim of

reducing excessive administration costs, ensuring faster execution of projects, and increasing the share of funding for “grass roots actions.”²¹⁰

Despite all deficits or organisational and implementation obstacles, the PPG7 has been the most extensive example of an international environmental cooperation programme, realised in the Brazilian Amazon region with the express participation of the Brazilian government. Some industrialised countries demonstrated their credibility by making their financial commitment to support the Brazilian efforts with a pilot programme in favour of an approach of sustainable development for the benefit of all inhabitants of the region and a responsible use of natural resources of the tropical rain forest ecosystems of Amazonia.

Despite start-up difficulties, the Pilot Programme had a framework that could not bring about a short-term halt of rain forest destruction but created the environmental conditions for participating action in terms of sustainability. However, the opening of economic alternatives with economically friendly management methods for the regional population in the sense of “productive conservation” (Hall 1997b), together with the awareness of the need for forest protection, will be able to slow down deforestation. This requires the political implementation of the necessary measures and the continuity of activities. Public pressure on the government increased by small farmers, trade unions and environmental activists who argued in favour of a bottom-up strategy for the Amazon based on environmental concerns (Scholz and Schönenberg 2007).

210 After six years, “the overall rate of disbursement stood at only around 30 %, suggesting poor executing capacity on the part of the government” (Redwood III 2002, 19).

