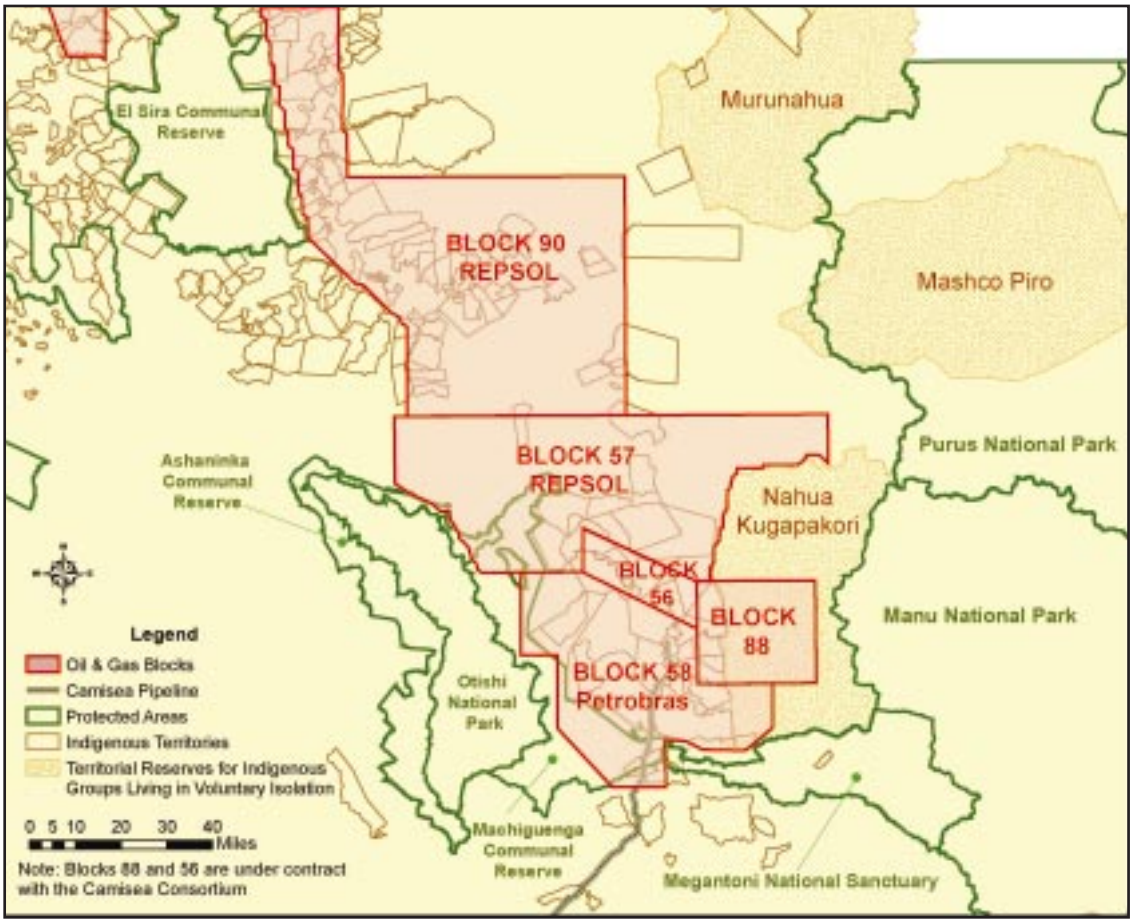
HYDROCARBON DEVELOPMENT IN THE LOWER URUBAMBA REGION, PERU: LEARNING FROM CAMISEA

Based on a longer report written by Michael Valqui (WWF-Peru), Juan Carlos Riveros (WWF-Peru) and Iván Brehaut

This study analyzes the probable environmental and social impacts of the natural gas extraction activities being developed in Peru's portion of lowland Amazonia. The study reviewed recent experience with the Camisea Project in the Lower Urubamba River region and used the Strategic Environmental Vulnerabilities Assessment approach to assess impacts of new investments. The study components included:

- Reviewing and analyzing the changes in the hydrocarbon investment policies in Peru (new royalty policies, etc.).
- Reviewing and analyzing the impacts of the hydrocarbons extractive activities on vulnerable peoples and ecosystems in the Camisea Project area.
- Identifying vulnerable areas and peoples likely to be affected by new hydrocarbon ventures, considering the above-mentioned changes in opportunity costs and Government of Peru (GoP) changes in environmental and social safeguards.
- Identifying likely impacts on these vulnerable places and peoples, based on the Camisea experience.

In light of plans to develop other natural gas sites in the region, the Camisea review is useful because of the precedents set by the project, because of the impacts which can be observed, and because of the lessons to be learned about how to reduce the negative impacts from gas exploitation. The Camisea Project is reshaping the Peruvian economy by reducing oil imports, increasing investment, and increasing government revenue. The project's 740-km long pipeline, which crosses the lowland and montane rainforests on the eastern side of the Andes, has also paved the way for other projects. The processing plant in Paracas and the planned gas-liquefaction plant in Chincha could be



followed by petrochemical factories, thus creating a gas transformation hub for the western coast of South America. The Camisea gas fields and the first section of the pipeline cross the Southwestern Amazonian Moist Forest Ecoregion. This ecoregion is designated as one of WWF's "Global 200" ecoregions, based on a comprehensive analysis of global biodiversity data. It is also an area of indigenous lands. Other planned developments lie within this same region[1].

This summary paper briefly reviews the legal and institutional context, the experience with Camisea, and the implications for new developments. Maps illustrate the concession developed under Camisea (Block 88), other concessions headed toward exploitation, protected areas, indigenous territories, and territorial reserves of indigenous groups living in voluntary isolation.

Legal and Institutional Context

In the 1990s, the IMF and World Bank supported structural reforms and projects that encouraged investment liberalization and expansion of the hydrocarbon sector of Peru. The state company, Petroperu, was largely privatized, and the government liberalized foreign investment rules and offered tax exemptions to attract investment in oil and gas resources. The 1993 Hydrocarbon Law streamlined the investment process and put environmental assessment under the responsibility of the Ministry of Energy and Mines, the same institution responsible for attracting investment and managing hydrocarbon concessions. The promotion of Peru as an attractive country for oil and gas exploration continued during the government of President Toledo. A 2002 law provided a 30% cut in the royalties a company had to pay for the following four years (Gastelumendi 2003). The contract negotiation process was simplified, and contracts are now guaranteed through the life of a project, implying that changes in environmental or other regulations do not apply to ongoing projects.

While the Peruvian strategy to attract oil investors is paying off, the legal and institutional framework which should allow for the supervision and control of hydrocarbon operations on behalf of the Peruvian nation is lagging far behind. The legal framework is complicated, with gaps in key issues (De la Puente 2004), overlaps, and contradictions (Izquierdo 2004). The first problem is the lack of a centralized supervision and enforcement agency for environmental issues and the lack of a national environmental policy framework. Each productive sector has its own office for environmental issues which oversees the environmental performance of activities in the sector, including the approval of environmental impact assessments (EIAs). These assessments are carried out by the companies and, as a result, are limited in scope. Government institutions lack the resources (funds, personnel, infrastructure) to be able to match the great logistical effort needed for oil and gas operations.

The second problem is the lack of local control over resources and their benefits. Subsoil resources are not owned by landholders, and profits from the royalties in most cases do not reach the local communities. While any infrastructure development or activity is required to go through a process of consultation in local communities, the process is still very incomplete and there are clear deficiencies in the law (such as very short period for review of plans). The lack of satisfactory results is frustrating to most of the participants. The revenues from oil and gas production are distributed according to a fixed scheme, whereby the central government receives 50% and the producing region receives the other 50%. The regional share is then distributed among the provinces and districts involved. However, most of the income remains in the urban centers; communities bearing the environmental and social costs receive very little.

Camisea Experience

The objective of the Camisea project was the production of natural gas and natural gas liquids from the San Martín and Cashiriari fields (Block 88), transport to the Peruvian markets on the coast, and export. Due to the withdrawal of Shell[2], the original project was split into three components: Upstream (US$ 730 million), i.e. the development of the fields and the construction of the processing plant was awarded to a consortium led by Pluspetrol (Argentina) with the participation of Hunt Oil (USA), SK corporation (South Korea), and Tecpetrol (Argentina). Downstream (US$ 850 million), i.e. the transport from Camisea to the coast and Lima, was awarded to a consortium led by Tecgas with the participation of Pluspetrol, Hunt Oil, SK Corporation, Sonatrach (Algeria) and Graña y Montero (Peru). Distribution of the gas in Lima (US$ 71 million) was awarded to Tractebel (Belgium). Originally the upstream component was to be financed with equity contributions of the operators (US$ 385 million) and with credit facilities from Exim Bank (USA) and SACE (Italy). However, Exim Bank declined to participate and the gap was filled with operator's own funds (selling stocks to Hunt among others). The downstream component was financed with a domestic bond issue of US$ 270 million, and loans from the Inter-American Development Bank (IADB) for US$

1 The pipeline crosses several Global 200 ER (about 95% of Peru's terrestrial surface is under a Global 200 Ecoregion). Paracas Bay is located in Humboldt Current Marine Ecoregion (Global 200 Ecoregion).

2 In 1999, Shell-Mobil declined to sign the contract for the gas exploitation with the Peruvian government, for reasons that were unclear.

75 million, the Corporación Andina de Fomento (CAF) for US$ 225 million, and the BNDES (Brazil) for US$ 103 million.

The wells are located inside the Nahua Kugapakori Territorial Reserve. Gas is transported 50 km to a liquid separation plant in Las Malvinas on the Urubamba River. Natural gas and natural gas liquids are then transported in separate pipes that cut through several indigenous Machiguenga communities, pristine lowland and montane rainforests, and then across the Andes, reaching altitudes of 4,800 meters-above-sea-level. On the coast, the natural gas currently feeds industries in Lima, while the liquids are processed in the plant at the entrance of Paracas Bay.

Vulnerable Places and Peoples:

The Urubamba region holds some areas of prime importance to biodiversity conservation such as the Cordillera Vilcabamba, the Lowland Urubamba river basin, and the headwaters of Manu and Purús Rivers. Several scientific institutions recognize the significance of Cordillera Vilcabamba as one of the 25 world hotspots for biodiversity due to a combination of high species richness, endemism, number and diversity of habitats, and bio-geographic and evolutionary processes. This area also serves as a biological corridor for Nearctic migratory species. In order to preserve the rich biodiversity of the region, the GOP has designated four protected areas: Otishi National Park, Machiguenga Communal Reserve, Ashaninka Communal Reserve and Megantoni National Sanctuary[3]. Paracas Bay is the site of Peru's only marine protected area.

Relatively isolated by the absence of roads, the Lower Urubamba is occupied by several ethnic groups. At least 95% of the population lives in rural areas, 45% of the inhabitants are younger than 15 years, and at least 30% are illiterate. Most of the population is below the poverty line according to UNDP standards. Some basic services, including water sanitation and schools, are restricted to the major towns or are totally absent.

Indigenous settlements in the Lower Urubamba are spread long the riverbanks; some nomadic indigenous groups live in voluntary isolation. The largest indigenous group of the Lower Urubamba is the Machiguenga (10,000 people). The Yine (Piro) group

3 It should be noted that all of these areas were designated during the Camisea Project development.

(2,500 people) is settled in the northern portion of the Lower Urubamba and along the Ucayali River. The Ashaninka group (1,500 people) is not native to the area, but migrated there in the 1980s as a result of conflict in the Central Andean Yungas. The main economic activity of the indigenous population is subsistence agriculture, which is complemented by hunting and fishing. The indigenous people are the primary users of forest resources, including bush meat and wild plants. Hunting for subsistence is a daily routine, with great social importance. Fish is the main source of protein for the riverine settlements (Ortega et. al., 2001). Forestry and raw-goods trading are slowly gaining importance in the local economy. The indigenous communities are grouped under native federation organizations, corresponding to the different basins and ethnic groups living in the region.

The *colono* settlements are inhabited by Andean and Pucallpa migrants. While the migration process started 60 years ago, most of the current *colonos* were attracted by the labor opportunities created by gas exploration during the 1980s. Most of the *colono* population practice agriculture, with a few involved in trade.

Impacts of Camisea

The GoP played a crucial role in creating conditions and paving the way for the completion of the Camisea project. From the beginning, civil society groups expressed their doubts about the Consortium's ability to comply with international standards. Several serious problems occurred during the construction of the project as well as a pipeline rupture four months after production started, proving that the early doubts were warranted.

It was also clear that the GoP lacked the appropriate institutional framework and resources to be able to monitor the project and enforce correct operation practices. One of the arguments used by the Consortium and the IADB to explain their lack of commitment to take care of the indirect fallout of the project was that this should be assumed by the government at different levels. However, in many of the areas the government has no presence at all, and could not be expected to address such impacts as migration to the region.

Nevertheless, some positive precedents were set. First, in the 1990s Shell-Mobil initiated a greatly improved approach to social and environmental impacts. The biodiversity assessment was by far the most thorough evaluation done for any development project requiring EIA in Peru. The social work was also very thorough and far above then-standard practices in Peru. This has set a precedent for future projects. The overall quality of the EIAs and the environmental monitoring practices of the GoP have improved significantly over the last ten years. Second, a new category of protection was created with the Reserva Territorial Nahua-Kugapakori, which is located in the upper reaches of the Camisea River overlapping Block 88.

Environmental and Social Impacts

The environmental and social impacts of the initial Camisea project can be expected to arise in the Lower Urubamba area as hydrocarbon development proceeds. The ecosystems affected could probably recover from the direct environmental impacts in a couple of decades. However, the indirect environmental impacts will probably cause long-lasting, even irreversible changes. The Camisea project has started a series of processes-including colonization and local economic change–which act in synergy to increase human population density, increase the market orientation of the local economy, and provide the means to a more intensive use of natural resources. In other areas of Peru, the construction of roads connecting the local markets to the national economy was the trigger that ultimately led to fragmentation and deforestation of the tropical forests and the absorption or modification of local cultures.

Camisea has had major impacts, including deforestation and surface erosion, in vulnerable places. In rugged terrain, total deforested area is almost twice what was predicted by the EIA (Johnson 2004). Fish and wildlife populations have been affected by increased hunting and fishing, and possibly by declining water quality. If regional governments use the funds they obtain from royalties to construct more roads, this will increase the exploitation of timber and open up new areas for agriculture and ranching.

Project construction has brought a number of social changes that are relevant to the environment. Colonization is fueled by two consequences of the Camisea project. First, regional and municipal governments now have a secure income. Second, the right-of-way has opened access to areas where the government land-titling agency has not solved land rights issues. The Machiguenga in the Lower Urubamba are in the unique position of having secured an almost complete indigenous territory. Land rights are explicit and clear. However, the Camisea pipeline crosses the tip of the Reserva Comunal Machiguenga and establishes a connection between the Upper and the Lower Urubamba regions, which is being used as access by loggers and colonists. Machiguenga communities in the Upper Urubamba are trying to increase their titled land to prevent encroachment; however, the government institution assigning land titles (PETT, or Proyecto Especial de Titulación de Tierras y Catastro Rural) gives priority to individual titles (i.e. colonists).

Communities in the Upper Urubamba are reporting an increase of colonists entering from all sides.

Although indigenous families benefited from increased incomes during construction through a greater demand for local labor force, indigenous families and communities are experiencing changes in their traditional ways of life. For example, employment of Machiguengas by the Camisea project has reduced the workforce available for traditional activities like agriculture. Indigenous peoples are worried about the loss of their culture, but at the same time they want to get the benefits of development. Access to television, radio and other media will probably have a profound impact in their view of the world and their priorities. In addition, the project is affecting the uncontacted groups in the region. Over the last three years, several deaths have been reported among the uncontacted groups inside the Nahua Kugapakori Territorial Reserve due to atypical diseases, allegedly infected by Pluspetrol workers (Napolitano and Stephens 2003).

The environmental and social problems created by Camisea are likely to be repeated in new developments, unless there are important changes in the legal and institutional context, and proponents of conservation and sustainable development take a more effective approach. The sections below describe the legal and institutional issues that arose, and some of the lessons learned from the approach that civil society organizations (CSOs) took toward trying to control the impacts.

Legal and Institutional Issues: A number of legal and institutional issues became apparent in the Camisea process, all of which are likely to affect future developments as well.

- **Inadequate EIA and approval process.** EIAs for the project components were inadequate in a number of ways. The EIAs used narrow definitions of direct and indirect impacts, and the review and approval process suffered from many irregularities. For example, reviews of the Erosion Control Plan along the right-of-way were insufficiently detailed, evidently ignored the special needs of this rugged area, and used inadequate technology. Site selection for the processing plant on the coast was obviously geared to favor Paracas. Despite its location at the mouth of Paracas Bay, the plant was not considered to have a direct impact on the Paracas National Reserve, although any spill will probably flow into the bay. According to CONAM (the government institution in charge of coordinating environmental matters at a national level), as a result of the irregularities in the EIA process the national environmental management system was weakened, and government institutions with specific roles in environmental matters have even less authority to enforce environmental regulations (CONAM 2004).
- **Poor execution of EIA guidelines.** The need for good erosion control measures was put in evidence by the frequent occurrence of large landslides. Large sections of the right-of-way were cleared of vegetation and left open through the rainy season due to delays in the delivery of pipes. Global Village Engineers estimated that in certain stretches of the right-of-way as much as 100 tons of soil per meter of pipe has been eroded. Several times, soil erosion completely exposed the pipes, greatly increasing the risk of ruptures.
- **Poor monitoring and lack of effective enforcement.** Official Consortium and GoP versions of project performance are in stark contrast with the reports of local communities. However, Peruvian civil society has been unable to provide the mechanisms to allow for independent, on-the-ground monitoring. According to accounts of former government officials, monitoring reports were re-edited, delayed, or never reached the pertinent institutions. Beyond the failure to identify important impacts, the GoP lacks the will and the resources to enforce its environmental laws. Official monitoring of operations found almost 3,000 violations (OSINERG 2004), of which around 500 were not resolved. Due to the common practice of challenging or ignoring fines, they are an ineffective deterrent.
- **Lack of long-term plan for the regions.** Companies state that indirect environmental and social costs should be assessed and addressed by the national and regional governments. This unrealistically assumes that royalties and other project-related revenues are spent in a manner consistent with a long-term national and regional plan, which in most cases does not exist. For example, no government projection tried to predict the sudden population growth due to Camisea activities in the area and match it with investments in education and health. The Camisea project aimed to avoid the construction of roads so as not to facilitate migration to sensitive areas. Now, however, the income from royalties may lead the district or provincial municipalities in the Camisea area to build a road to the Lower Urubamba. This has been a great concern for the Machiguenga, who already have to deal with long-term colonists and the scores of would-be Camisea workers and their families.

Lessons Learned for Influencing Development Policies

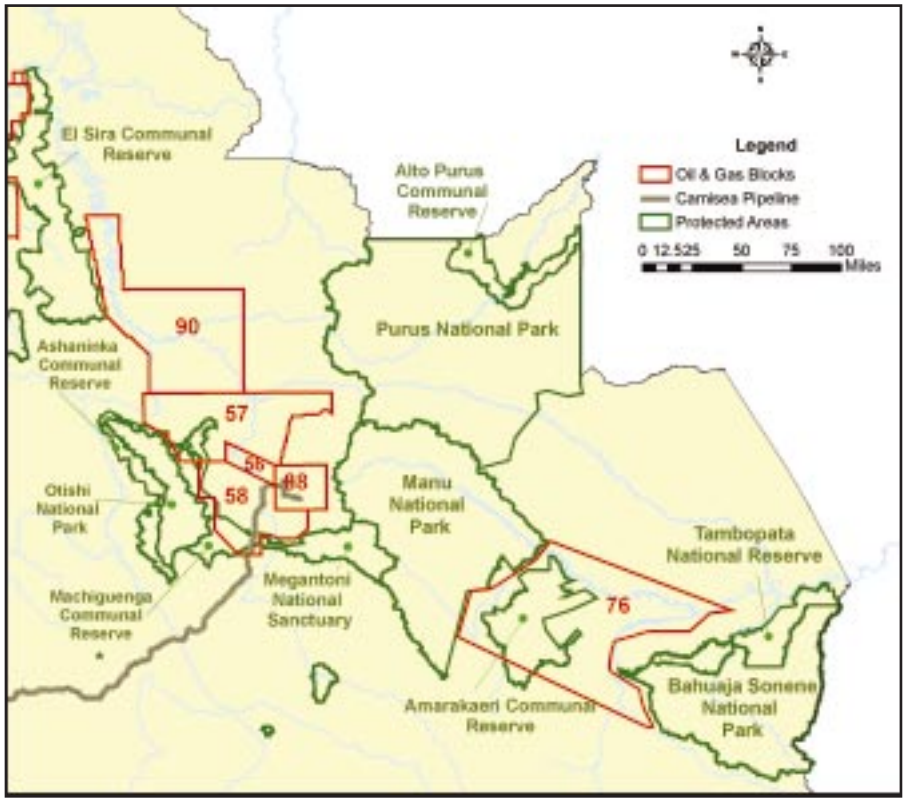
The permissive attitude of the GoP and the failure of the Consortium to accept responsibility for indirect as well as direct environmental and social impacts created a climate where apparently anything was allowed to further the goal of starting gas production in August 2004. Most Peruvian CSOs accepted the inevitability of the Camisea development, but demanded that certain conditions be met, among others those addressing the uncontacted groups. The combined pressure forced some changes in the drilling plans and ultimately allowed the official categorization of the Nahua Kugapakori Territorial Reserve[4].

The favored strategy by the coalition of international and Peruvian CSOs was to pressure the multilateral agencies to deny or put conditions on funding of the Camisea project. This strategy was partially successful, in that some project financers dropped out and the IADB imposed social and environmental conditions, although it did not enforce them thoroughly. The role of the IADB, and its conditions, was necessarily limited, given that local bonds covered the US$ 270 million funding gap. Moreover, once the loan issue was settled, the CSO coalition lost its focus, while the project continued without proper independent monitoring, due to the lack of communication between local indigenous groups and the national CSOs, and lack of coordination among CSOs. Peruvian civil society could not keep pace with such a large and complex project, driven by single-minded project sponsors and government.

Future Development of Natural Gas Projects in Peru

Available evidence suggests that Peru has huge reserves of natural gas and that the time for their exploitation is ripe due to the shift in consumer markets toward clean energy sources. The exploitation of these fields has been delayed until now due to the uncertainties in transportation from the remote Amazon and the institutional framework of the country. Current favorable conditions will lead to major investments in exploration initiatives and improvements in the transportation infrastructure all across the Andean-Amazon region. While these developments will surely contribute to the Peruvian economy, their social and environmental impacts are not being analyzed at the appropriate scale and government agencies are not prepared to deal with increased demands.

New exploration needs to be carefully examined in light of vulnerable people and places, and the lessons learned from Camisea. There is a large overlap between the sedimentary basins and biodiversity conservation priorities; consequently exploiting these new areas would affect some of the existing protected areas of the region, as well as indigenous territories. Manu and Bahuaja-Sonene National Park, Megantoni National Sanctuary, Amarakaeri and Machiguenga Communal Reserves will be affected directly or indirectly by any future exploratory drilling in areas coveted by companies interested in gas exploration. Indigenous territories surrounding these areas will probably suffer severe impacts as discussed above. In the Camisea area colonists are a minority and Machiguengas are the majority, but this will change as the gas industry expands further.



4 A notable exception among the Peruvian groups was AIDESEP – the main national organization of indigenous groups – which was always opposed to the project, even though some of the regional indigenous federations where less combative and some even welcomed the project.

The most vulnerable areas will be the Territorial Reserves – Nagua-Kugapakori, Murunahua and Mashco-Piro – as these areas have been set apart by the GoP for indigenous groups living in voluntary isolation. Currently these reserves have an unclear administrative status and the regulations for the use of their resources are still under discussion between the GoP, indigenous organizations, and the private sector.

The pressure exerted by CSOs over environmental and social compliance in the Camisea project has tested the adequacy of the Peruvian legislation and governmental institutional capacities. The funds obtained from IADB for the improvement of the Camisea project's environmental sustainability have contributed to raising awareness among the local stakeholders, through a number of consultation events and publications. Some useful recommendations obtained from this process are still pending discussion before inclusion in the national hydrocarbon regulations. This legal framework is still far from complete and it will take some time before the social and environmental components are properly addressed. At this time, there are many public institutions dealing with the hydrocarbon business sector and their coordination mechanisms are obscure and manifestly scarce. Gaps in laws and regulations allow for biased evaluation of companies' environmental performance. In addition, information obtained by government agencies is not easily shared and is often duplicated or even contradicted by other agencies. Finally, the hydrocarbon sector is affected by political corruption and mismanagement.

Social issues have been gaining ground within the hydrocarbon extractive industries agenda. Now, even the most simple hydrocarbon operation requires a public consultation process. However, participation levels are still below the expected standards because of the difficulties of access to information and lack of analysis of the implications of proposed hydrocarbon developments. Since 1999 the Ministry of Energy and Mines has been conducting a number of case studies and expert consultations in relation to the elaboration of Community Relations Guidelines. Despite the fact that these studies are still confidential, their findings have shown the confrontational nature of the relations between some companies and their neighboring communities. Indigenous organizations are becoming more active in the consultation and negotiation processes, but they are not all in agreement. Recent protests against extractive industries showed an emerging public movement that could have a critical role in the near future[5].

Peru is on the brink of a new national elections process and people's expectations for employment, increased incomes, and improvement of livelihoods will be exploited by the candidates. In this context the opportunities for improved legislation and practices favorable to the environment and vulnerable indigenous groups are fairly low. However, in Peru these conditions can change very fast when local people are willing to exert pressure on the government.

Figure 2. Camisea Area showing current oil and gas blocks, protected areas, indigenous territories and territorial reserves (WWF Peru 2005)

Figure 4. Protected Areas and Hydrocarbon exploration/exploitation blocks in Southeastern Peru (WWF Peru 2005)

References

CONAM. 2004. Plan Sistémico Integrado de Vigilancia, Fiscalización y Monitoreo Ambiental y Social del Estado en el Proyecto Camisea (PSI-Camisea). Volumen I. Aspectos fundamentales de PSI Camisea.

De la Puente, L. 2004. Diagnóstico legal para el posterior mejoramiento de la normatividad ambiental y social de las actividades de hidrocarburos. Grupo Técnico de Coordinación Interinstitucional (GTCI).

Gastelumendi, J. 2003. New hydrocarbons policy in Peru. Oil, Gas and Energy Gas Intelligence. 1(2): 40. Lima,

Global Village Engineers. 2003. Technical Memorandum: Camisea Natural Gas Project Environmental Evaluation. Prepared for Environmental Defense.

IADB. 2003. Camisea Project. Environmental and Social Impact Report.

Izquierdo, A. 2004. Diagnóstico Técnico Para el Mejoramiento de la Normatividad Ambiental y Social de las Actividades de Hidrocarburos y su Inclusión en los Contratos de Exploración y Explotación de Hidrocarburos. Grupo Técnico de Coordinación Interinstitucional (GTCI).

Johnson, A. 2004. Monitoring pipeline compliance through use of Quickbird imagery: a pilot study of the Camisea natural gas pipeline project, Peru. Final Course Project FES 506a: Observing Earth from Space. In collaboration with Environmental Defense.

Napolitano, D., and C. Stephens. 2003. La salud de los pueblos indígenas y el proyecto de gas de Camisea. Informe a la Asociación Interétnica para el Desarrollo de la Selva Peruana.

Ortega, H. et al. 2001. Diversity and Conservation of Fish of the Lower Urubamba Region, Peru. In Urubamba: Biodiversity of a Peruvian Rainforest. Alonso, A., F. Dallmeier and P. Campbell, eds. 2001. SI/MAB Series #7. Smithsonian Institution, Washington, D.C.

OSINERG. 2004 Supervisión de OSINERG. Megaproyecto Camisea.

5 Public consultation for Block 56 were suspended by the indigenous organizations after the Camisea Pipeline break in late 2004.

WWF Macroeconomics Program Office

1250 Twenty-Fourth Street, NW

Washington, DC 20037-1175, USA

Phone: (202) 778 9752

Fax: (202) 293 9211

E-mail: MPO@wwfus.org

Website: http://www.panda.org/mpo

This program is carried out with support from:

DEZA
DDC
DSC
SDC
COSUDE

Swiss Agency for Development and Cooperation

Sida

Swedish International Development Agency (SIDA)

MACROECONOMICS FOR SUSTAINABLE DEVELOPMENT **PROGRAM OFFICE**

M/P/O