Proceedings World Geothermal Congress 2005
Antalya, Turkey, 24-29 April 2005

Social Issues Raised and Measures Adopted in Philippine Geothermal Projects

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Keywords: social cost, Pareto transfer, multi-stakeholder

ABSTRACT

The social issues raised against geothermal projects in the Philippines for the past fourteen (14) years have been inventoried as follows: a) lack of consultation, b) physical and economic dislocation of settlements, c) lack of benefits d) encroachment of ancestral domain and e) privatization of the people's forest patrimony. The measures that have been developed to address these concerns are discussed. These measures include: a) awareness and acceptance campaigns, b) opening up communication, c) translating commitments into action d) third party multi-stakeholder monitoring, e) installation of environmental guarantee fund, f) resettlement, g) provision of benefits, h) protection of prior and ancestral rights, i) protection of patrimony and j) advocacy for appropriate public policies.

1. INTRODUCTION

PNOC Energy Development Corporation (PNOC EDC), a government-owned and controlled corporation is at the forefront of geothermal development in the Philippines. The company is clear of its mandate: to develop indigenous energy resources to spur economic development while protecting the environment and the community where it operates.

2. SOCIAL ISSUES RECORDED AGAINST GEOTHERMAL PROJECTS

The Philippines like the other parts of the world has experienced the sweeping environmental movement since the Earth Summit of 1992. Together with this environmental awareness is the articulation of social issues on development projects like geothermal. Of major concern is the social cost of development projects. The social cost of any activity is the loss or pain suffered owing to environmental degradation, material damage, accidents or public subsidies (Friedrich and Voss, 1993). Since 1990 or for fourteen (14) years of operation, the social concerns of the various stakeholders were monitored. Table 1 shows the concerns recorded per project site which include six (6) in Leyte, two (2) in Negros, eight (8) in Bacon-Manito and seventeen (17) in the Mindanao geothermal project.

2.1 Lack of Consultation

The first geothermal plants were commissioned in the 1980s when energy planning was centralized with the government, which adopted the top down decision-making process. By 1990, in preparation for the Earth Summit of 1992, an environmental awareness campaign was initiated by the government. The effect was the demand for consultation and public participation for the approval of development projects. The need to consult communities on projects with potential impacts to their lives was a premier concern. Hence starting 1991, the company voluntarily subjected its new projects in Leyte and Mindanao totaling 693 MW to public consultation. In 1996, the government required public consultation for all development projects based on the positive experience of PNOC EDC.

Table 1. Social Concerns Raised Against PNOC EDC Geothermal Projects (Jan 1990-May2004)

Year	Leyte [b]	South Negros[c]	Bacon Manito[d]	Mindanao[e]	Total
1990	0	0	0	0	0
1991	0	0	1	0	1
1992	0	0	0	1	1
1993	0	0	0	1	1
1994	1	1	0	2	4
1995	1	0	1	2	4
1996	0	0	0	2	2
1997	1	0	1	1	3
1998	0	0	2	0	2
1999	0	0	0	0	0
2000	0	1	0	1	2
2001	1	0	1	2	4
2002	2	0	2	3	7
2003	0	0	0	1	1
2004	0	0	0	1	1
Total	**6**	**2**	**8**	**17**	**32**

[a] Covers only commissioned power projects
[b] Leyte : labor termination after construction of facilities
[c] So. Negros : compensation of right-of-way and potential displacement
[d] Bacon-Manito: sharing of royalty among towns and high power rates
[e] Mindanao : ancestral domain issues/dislocation

2.2 Dislocation of Settlements

Of the seven (7) operating geothermal projects in the country which contribute 1,905 MW to the country's power supply, about three (3) projects had to resettle households to facilitate the construction of the project and to avoid potential exposure of residents to emissions from the geothermal plant. The affected population is however minimal in number, consisting of 21 households in Mindanao; 51 households in Leyte and 25 households in Northern Negros, a project currently being developed. The area given up by these 97 households facilitated the delivery of power to an estimated 14,660,000 rural homes.

2.3 Lack of Benefits

Lack of benefits was a recurring complaint in the 1990's but the concern was not limited to geothermal projects. In 1994, the Philippine Department of Energy has assessed that pollution complaints and fear for potential health impacts by geothermal projects seemed to be related to the demand for benefits for the compensation for these social costs. An average of ten (10) to fifteen (15) pollution and health issues have been raised against each PNOC EDC project since 1990. All of them have been invalidated by regulatory agencies with the petitioners. As expected, the development of government regulations on the benefits to host communities and affected sectors coincided with the period of environmentalism from 1991-1994. This benefit issue is further discussed by de Jesus (1997).

2.4 Encroachment of Ancestral Domain

The Mindanao Geothermal Project as well as some geothermal prospects in the Philippines is sited in the lands of tribal peoples or Indigenous Cultural Communities (ICCs). The issue of encroachment of ancestral domain is based on the "growing awareness that ICCs constitute peoples who are distinct from the mainstream citizenry and who have territorial domains and right to self-determination" (Bautista et al., 2002). The Indigenous Peoples Rights Act or IPRA guarantees the protection of the rights of ICCs over lands and natural resources therein, held under claim of ownership, occupied or possessed by ICCs (Philippine Congress, 1987). Entry of an outside geothermal developer therefore leads to the issue of encroachment of ancestral lands leading to desecration of sacred sites and the erosion of the ICC's traditional way of life.

2.5 Privatization of PNOC EDC and Sale of Forest Patrimony

In 2001, the government promulgated the Electricity Power Industry Reform Act (EPIRA) that provides for the framework for restructuring the power industry. The law further provides for the privatization of geothermal steamfields together with power plants to ensure the quality, reliability, security and affordability of electric power through private competition (Philippine Congress, 2001). The privatization of the energy sector was based on the desire of government to invite private capital to finance expensive energy projects so that government funds can be better used for social services. Concerned sectors on geothermal projects argued that the privatization of PNOC EDC would lead to the return of profit-driven decisions and the sale of the forest patrimony where most geothermal resources are located. More importantly, its was feared that once privatized, the company would not comply with its commitments to its stakeholders

3. MEASURES TO ADDRESS SOCIAL CONCERNS

At the center of every social conflict is an emotional issue. The source of conflict is the difference in appreciation of the issue due to a difference in the background between the geothermal developer and the stakeholders. This difference may be bridged through several measures. The company adopted the following measures to resolve the social conflicts encountered. In the following discussion, the assistance which are measured in financial terms are computed at 2004 level of US$ 1=P55.

3.1 Awareness and Acceptance Program

The company believes that before any discussion of the issues can prosper, it must introduce itself to the stakeholders. Hence, as a standard procedure, the company conducted information drives for its various stakeholders consisting of the local government units (LGUs), government agencies, host communities, non-governmental organizations (NGOs), peoples' organizations (POs) and private business. A multi-disciplinary information team was formed for the purpose. The activity took six (6) months to a year per project. The information content included the geothermal resource, the project description, potential environmental impacts, measures and benefits to host communities. Public assemblies as well as focused discussions were conducted (Figure 1). In the case of critical decisions or during public hearings on issues, an oversight panel was present to ensure the objectivity of the process. In the process of sharing information, some members of the community were convinced that the project is good for the community and the country. They were then developed as third party speaker's bureau. The company also assessed that it was best to document the proof of acceptability. This was usually in the form of written resolutions of endorsements by the local government units, communities and other sectors.

Fig. 1. Consultation on new geothermal project in Tanawon in Bacon Manito Geothermal Field, Sorsogon

In the extreme case of the intensely opposed Mindanao Geothermal Project, the site was opened to the public for people to visit and to validate the claims of the company on sound environmental management. For this project, a total of 42,075 individuals (local and foreign) from all walks of life have visited the site from 1992-2004. The program was later adopted in the other projects due to its positive effects on acceptance.

3.2 Opening Up Communication

PNOC EDC's key strategy to manage social conflicts was to master communication. The company faced the petitioners as co-equal in the belief that this reciprocity would open the foundation for the building of relationships.

Communication helped the company get more information to reduce uncertainties. When the company decided to open up itself, it gathered new information from all sectors, which validated perceptions and overcome prejudices. In time with greater understanding, both the company and the petitioners approached each other with less suspicion and with trust.

The following are the bases of the successful communication by the company. Firstly, the process required full understanding of what "public voice" meant (Chambers et al., 2003). The public voice was attained by protecting the process through proper representation by sectors. Correct representation was very important, as people tended to feel that legitimacy and authenticity was related to power and resources. The poor did not have the resources to collect and present evidence for their complaints. On the other hand, the company recognized that the participation of stakeholders is their right.

Second, the company understood the importance of a good facilitator of the communication process. As investigated by Braakman (2003), good facilitators are "content neutral" or those that do not take positions. They do not transfer their knowledge on the issue but instead mobilize existing knowledge of the participants. They also collect facts rather than emotions. The company was in the right track when it intentionally trained its Extension Officers to acquire the traits of successful negotiators as early as 1990 and when it allowed them to undertake continuing education todate. Their field laboratories are the upland farmers associations they have organized totaling eighty-five (85) associations in all its five (5) projects. This is an average of nineteen (19) associations per project site.

Lastly, the company also learned the role of management in meaningful communication. The company must show institutional willingness to dialogue. According to Cornwall and Gaventa (2001), communication must be championed by high level advocates within the organization. The participation of management people in dialogues signified candor and accountability to the stakeholders.

3.3 Translating Commitments to Action

The most important strategy that helped gained stakeholder acceptance for the geothermal projects was the actual implementation of the commitments made during the information drives. All the committed measures were made part of the standard procedures in field operation. As an example, among the issues most asked during dialogues is the impact of geothermal development on public health and on forests.

The protection of public health was manifested by the daily monitoring of air and water quality around the power project to check the company's compliance with environmental standards. The information was open to a third party multi-sectoral monitoring team where the community is represented.

The claim of the PNOC EDC that it would minimize forest destruction for geothermal recharge was witnessed by the host communities when the company routinely adopted directional drilling and multi-well pad strategy in all its projects after 1990 to minimize earthworks. It also replaced the 445-hectare area it developed for its five (5) projects with 8,049 hectares of agro-forest plantations. This replacement is equivalent to eighteen (18) times the developed area (Table 2). The evidence of the company's sincerity was further strengthened by the fact that communities residing in the area were tapped to establish these plantations (Figure 2).

Fig. 2. Nursery tended by tribal community in Mindanao Geothermal Project

Table 2. Replacement of Developed Areas as of May 2004

Geothermal Project	Developed Area (has.)	Replanted Area (has.)
Leyte	185	2,500
South Negros	60	3,501
Bacon-Manito	105	1,133
Mindanao	67	595
North Negros	28	320
Total	445	8,049

All the committed measures for the project were documented and monitored regularly by the Environmental Management Division of PNOC EDC.

3.4 Multi-stakeholder Monitoring Program

PNOC EDC was the first in the country to install the third party multi-sectoral monitoring program in 1993, a year after the protocol was prescribed in the Earth Summit of 1992. The move showed the intent of the company to be transparent in its operation. Corollary to the visitors program, the project activities were allowed to be monitored by a Multi-Sectoral Monitoring Team (MSMT) composed of representatives from the local government units, host community, NGOs, the Department of Environment and Natural Resources (DENR) and other concerned sectors in the area (Figure 3).

Fig. 3.Water quality monitoring of North Negros Geothermal Project by third party team from the community

Aside from the power to monitor and investigate complaints, the company provides the resources for the activity. Triplicate samples are collected from each station, each to be kept by the NGOs/community, DENR and the project operator. In case of any variance in the results of analysis by the company and DENR, the third sample of the community is sent to an accredited laboratory for analysis. Resampling may be done and a third party expert may be commissioned as necessary to resolve any variance in results.

3.5 Environmental Guarantee Fund

The Environmental Guarantee Fund (EGF) is a financial arrangement negotiated between the proponent, the government and the affected community. The amount is intended for rehabilitation and payment of damages due to the accidents from the operation of the project (DENR-EMB, 1994). The EGF of PNOC EDC is in the form of Financial Test Mechanism that manifests its capability and readiness to address any environmental incident arising from its operation. Lately, the fund is planned to be deposited in a bank managed by the Department of Environment and Natural Resources.

3.6 Resettlement

The company recognizes that involuntary resettlement could lead to economic, social and environmental problems. Therefore, resettlement programs have become an integral part of the project design. The goals of PNOC EDC's resettlement program are: a) to facilitate access to the area, b) to protect residents from the health hazards of plant emissions, c) to assist affected families in regaining their previous standard of living and d) to facilitate the formation of a self-reliant and productive resettlement community (de Jesus, 2000 and PNOC EDC, 1993).

In the absence of local guidelines, the precriptions of World Bank and the Japan Bank for International Cooperation were adopted. In summary, the guidelines require the replacement of all lost structures, livelihoods and amenities (World Bank,1990). The process consisted of the following activities: a) baseline surveys of socio-economic circumstances of potentially affected households, b) the consultation of replacement package, c) construction of replacement homes and amenities, d) provision of replacement livelihood; and e) monitoring of the program.

Fig.4. Replacement homes for dislocated families of North Negros Geothermal Project turned over in 2003

A total of $ 636,000.00 was spent for the replacement of structures for the three (3) resettlement programs of the company involving ninety-seven (97) households. The amount is broken down to US$ 61,636.40 for Mindanao Project, US$ 454,545.40 for the Leyte Project and US$ 119,818.20 for the North Negros Project. An additional US$ 168,905.70 has been provided for replacement livelihoods. The amount is broken down into US$ 67,223.60 for Leyte Project, US$ 2,854.54 for No. Negros Project and US$ 98,827.54 for Mindanao Project.

The implementation of the resettlement package was monitored from inception. The more important measures of the success of the program were the establishment of long-term livelihoods, the maintenance of structures donated, the management of communal services turned over and the acceptance of the geothermal project.

3.7 Provision of Economic Packages

Social acceptability is often equated with the stakeholders' access to meaningful benefits or benefits which have direct positive impacts (de Jesus, 1997). The company's benefits policy adheres to the weak Pareto-Efficiency principle which states that projects can be made viable if those who would be made worse off agree to some kind of compensation from those who would be made better off (Bautista, 2001). Various benefits are shared with communities in recognition of their contribution to the national security and national development for hosting the project.

3.7.1 Community relations fund (1987-present)

The inspiration for PNOC EDC's community relations (comrel) program is the company creed developed by management with the employees in 1987. The creed emphasizes the employees' desire to promote the best interest of the company and the community it serves. As a corporate citizen in the area, the company regularly allocates community development funds. With the company as agents of change, the comrel program is designed to mold the community into architects of rural development.

Comrel projects include educational support in terms of scholarships, school facilities and books; health and sanitation in terms of medicines, clinics and medical/dental services; sports; local infrastructure assistance such as the construction of roads and water systems; and livelihood improvement. To date a total of 47,206 people in Leyte, 67,403 in South Negros, 37,950 in Bacon-Manito and 71,700 in Mindanao or a total of 224,259 people have been assisted by the program.

3.7.2 Royalty payments (1992-present)

Based on the Local Government Code of 1991, the company is remitting to the national government sixty (60%) of its profit net of tax. Forty (40%) of this amount is given to the host communities through the local government units. This represents the royalty for the use of the geothermal resources in the area. Eighty (80%) of the royalties is allocated for the reduction of electricity rates and twenty (20%) is for development projects for the host communities.

3.7.3 Energy benefits fund (1994-present)

On top of the royalty payments, PNOC EDC as steamfield operator together with the power plant operator contributes one centavo per kilowatt-hour generated to a development fund in accordance with Energy Regulation 1-94 of the Department of Energy (DOE). The fund was adopted from the Environmental Tribal Welfare Trust Fund of the company for the Mindanao Geothermal Project in 1992. The DOE fund is used for missionary electrification, health

and sanitation, livelihood development, watershed management and environmental enhancement.

The following table summarizes the amounts contributed by the above three (3) benefits funds. A total of US $ 16,369,127.00 has been contributed in 4 operating projects since 1988.

Table 3. Community Services Funds Since 1988

Funds	Leyte	South Negros	Bacon Manito	Mindanao
Community Relations (US $)	591,338	188,883	185,665	253,773
Royalty (US $)	6,353,818	1,923,636	2,900,338	757,805
Energy Fund (US $)	962,934	1,723,340	199,273	328,324
Total benefits (US $)	7,908,090	3,835,859	3,285,276	1,339,902

For community relations projects alone, a total of 224,529 beneficiaries of the projects have been recorded broken down into 47,207 for Leyte,67,403 for South Negros, 37,950 for Bacon-Manito and 71,700 for Mindanao Project.

3.7.4 Rural electrification (1998-present)

The company regards rural electrification as the logical outcome of its power project. However, communities closest to the power plants remain in the dark due to the prohibitive cost of installing the lines because of low population density in the area. Recognizing the importance of electrification to spur economic growth in the countryside, the company volunteered to pilot the participation of private firms in the government's accelerated rural electrification program in October 1998. To date it has energized 448 barangays (towns) and 71 sitios (villages) at a cost of US$ 9,090,909.09. It continues to energize 250 barangays yearly (Figure 5).

Fig. 5. Electrification of villages around geothermal projects

3.7.5 Building model forest communities

Philippine geothermal projects are mostly located in forest environments where upland communities abound. The depletion of resources in the lowlands has forced populations to encroach these watersheds. As accurately described by Nieva (2002), protecting and rehabilitating the watersheds in these sites proved to be the most challenging task for the company. The company's solutions lie in the appropriate technology, adequate funding and the willingness of upland communities to organize themselves and empower their members to work for a better quality of life.

The scheme involved the organization of former slash and burn farmers for them to undertake the reforestation and the overall management of their forest areas. Upland farmers saved 10% of their income from reforestation in a communal fund called Capital Build-Up Fund (CBU), which can only be tapped for the expansion of their reforestation areas or extension to other livelihood opportunities that can increase the wealth for the community. Today, the company has assisted eighty-five (85) farmers associations comprising of 3,700 households maintaining 482 livelihood modules with a savings in the bank of about P 9,000,000.00 or $ 163,636.36 in the bank from an originally cashless society.

Fig. 6. Slash and burn farmer families manage alternative livelihoods.

The communities managed their livelihoods in place and avoided entry to the forests. The result is a social fence that has relieved the pressure on the forests resulting in its recovery. The enhanced economic status of the upland farmers gave them the confidence in their capacities and made them proud of their contribution to the environment. The watersheds in geothermal sites have become the pride of these barefoot environmental heroes. Four (4) of the farmer associations organized by the company, namely, the Boloc-boloc Farmers Association (BOFAS) of Negros Oriental; the Tongonan Farmers Association (TOFA) and Ga-as Farmers Association (GAFA) of Leyte, and the Tulungan Farmers Association (TULUNGAN) of Bicol received the a national and regional award for their crusade for a greener and cleaner environment from 2000-2003.

3.8 Protection of Prior and Ancestral Rights

The Indigenous People's Rights Act or IPRA is the strongest instrument of protection for Indigenous Cultural Communities (ICCs). Lately, the laws issued in geothermal areas with tribal peoples complement this. The Mindanao Geothermal Project is located in Mt. Apo and Chapter III, Sec. 12 of the Mt Apo Natural Park Act of 2003 assures that the rights of ICCs to their ancestral domain shall be fully recognized and nothing in the law shall be construed to impair or diminish prior or existing rights. Chapter VII, Sec. 27 further confirms that the law shall be construed liberally in favor of ICCs.

The ICCs around the Mindanao Geothermal Project in Mt. Apo has already filed their application for ancestral domain claim in year 2001 based on their rights over the area. The

Certificate of Ancestral Domain Title or CADT is expected to be released by July 2004 by the National Commission on Indigenous Peoples to give them the right to manage the resources on their lands. Section 14 of the same Act provides for the respect of existing rights. Hence, the ICC titles are expected to respect PNOC EDC's prior rights in the area by virtue of Presidential Proclamation 853 of 1992, which declared the area as a geothermal reservation before the passage of IPRA.

Fig. 7. A tribal ritual was performed to allow the company to operate in Mt. Apo Park.

3.9 Protection of forest patrimony

Concerned sectors feared that the privatization of the company would lead to profit-driven decisions and the sale of the forest patrimony. To ensure that this will not happen, the privatization of the company shall adhere to the Philippine Constitution, the highest law of the land. Article XII of the Philippine Constitution allows the government to enter into contracts for the exploration and development of natural resources/patrimony for economic development. But it requires the retention of at least 60% Filipino ownership over natural resources development. The new owner shall also be subject to all environmental and social laws as well as its obligations and commitments to the stakeholders.

3.10 Advocacy for Appropriate of Public Policies

The smooth implementation of the geothermal projects requires the advocacy for proper public policies. The key issue of conflict in geothermal projects is the exploitation of resource that may result in perceived pollution or the competition for land use. In the past, the resolution of resource conflict issues took time in the absence of policies.

The company recognized that these conflicts could only be solved by government policies that address the social and economic equity for both the geothermal developer and its stakeholders. Thus since 1998, the company has been actively attending technical working group deliberations and has been participating in legislative hearings on policies such as tenure rights, natural rights, land use management, water and air quality management, sustainable forestry management, green pricing and incentives for renewable energy development.

The recently passed Mt. Apo Natural Park Act of 2004 and the Kanlaon Natural Park Act of 2001 are examples of legislations that aimed at the balancing of energy development and environmental protection objectives. Various mechanisms were introduced in the laws such as: a) defining a fixed boundary for geothermal exploration, b) restricting the geothermal area at the edge of the park to minimize impacts and c) assigning the geothermal area as a multiple-use zone where its operation is expected to provide economic options to park settlers to keep them away from encroaching the park for livelihood (de Jesus, 2004). The conversion of geothermal into a multiple-use zone of the park is consistent with the current approach of managing protected areas for and with the people as recommended in the Biodiversity Convention in Kuala Lumpur in February 2004.

Outside the legislature, the company partners with various organizations in projects that advocate for co-existence of environment and development. It joined the "Green Renewable Independent Power Producers" program in 2003. Led by DOE and partnering with NGOs like the Greenpeace, World Wildlife Fund and Philippine Rural Reconstruction Movement, a National Renewables Plan has been developed for the country in 2003. A firm project of 1613MW from renewable energy resources has been inventoried with geothermal making up 32% of the energy mix. This is a package of renewable energy projects that are competitive with traditional fossil-fuel power resource options.

4.0 CONCLUSIONS

The resolution of the social issues raised against PNOC EDC geothermal projects was the result of the efforts of the company in improving communication as the foundation for sustainable relations with its stakeholders. Improved communication led to improved understanding of the stakeholders' views. With a determined effort to nurture relations, the company also opened its heart and minds to changes that led to: a) recognition and payment of obligations, b) respect for prior and natural rights and c) sharing of benefits, authorities and resources so that the stakeholders can participate meaningfully in the economic development brought by the geothermal project. Lastly, these initiatives were institutionalized in the company and legislated as public policies for permanence for the protection of both the company and its project stakeholders.

In the end, all these efforts resulted in the respect and trust of stakeholders and ensured the sustainable operation of the geothermal business due to less complaints, less cases, no loss in executive time for attendance in hearings and less expense for public relations due to a generally supportive community.

The company does not expect a zero complaint in its operation as there will always be new issues and new publics that may arise. It is however confident that with these mechanisms in place, these can be minimized.

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