

Socio-economic pressures on forest management: An insight from the Philippines¹

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Abstract

This paper attempts to analyze the pressures posed by the socio-economic realities of local people in the management of forest lands which are integral parts of their communities.

The setting is the two contiguous upland communities of the UP Mindanao land reservation, which geographically belong to the so-called "Timber Corridor of the Philippines". About 80% of the total land area of these two communities is classified as forest land. In the context of the Philippine setting, this means that the area is a public land.

These communities are faced with grim socio-economic realities: normal mode of transport is motorbike through dilapidated logging road, farming is the major source of livelihood, more than 60% of the households live below the poverty line, about 50% of the total population is below 15 years old, the nearest hospital is about 100 kilometers away and the local health centres only have first-aid kit, and until the end of 2007, nobody from the community had finished college education. Similar realities abound in many other upland areas in the country.

Probably because of the above realities, the conservation and management of the environment (which they equate to the surrounding forest) is not a priority for the local communities. Rather, their main concern is the attainment of sustainable livelihood, improvement of the road condition, acquisition of health facilities, and upliftment of the residents' level of education. These concerns are not mutually exclusive, and in fact, are interrelated. This shows that socio-economic realities in the communities pose great challenge for the management and conservation of the area. This is particularly significant in the light of community perception that the government gives greater importance to the protection and conservation of the environment than the welfare of the local people.

Key words: *Philippines, socio-economic factors, forest management*

¹ This paper utilized data based on the research entitled "Assessment of community perceptions towards development initiatives in the Laak-Veruela land reservation", which was funded by a research grant from the University of the Philippines System.

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Introduction

The Philippines is an ecologically rich and diverse archipelago. Conservation International (CI) considered the country as one of the 17 “mega diverse” countries of the world, which together hosts two thirds of the world’s biological resources. But while the Philippine tropical forest is among the richest in the world, it is considered as one of the “hottest” biodiversity hotspot (Francisco and de los Angeles, 2003) because of the rate of destruction. Data from the Food and Agriculture Organization (FAO) indicated that the Philippines had one of the highest rates of deforestation around the world. During the brief period from 1990 to 1995, the deforestation rate was estimated at an annual average of 3.5% of forest cover, losing between 68,000-80,000 square kilometers or about 22% of the country’s total land area (FAO 1997, as cited in Utting, 2000).

As of 2003, the Department of Environment and Natural Resources (DENR) estimated that the country’s remaining forest³ areas at 72,000 square kilometers (km²). This is only 24% of the country’s total land area, which is way below the country’s ideal forest cover. For the Philippines to remain ecologically sound to sustain its ecosystems, the ideal forest area is 54% of its total land area (IBON Databank and Resource Center, 2006).

The decline in the state of the Philippine forest resources becomes more alarming in the light of the extensive legal initiatives to protect not only the forests, but the country’s rich natural resources, in general. These legal initiatives are usually in the form of government legislations, from national government policies to local government ordinances. Recent initiatives normally include provisions for participatory resource conservation, such as participatory forest management.

The land reservation

The establishment of the Laak-Veruela land reservation of the University of the Philippines Mindanao (UP Mindanao)⁴ can be broadly considered as among the initiatives taken by the national government towards natural resource management and conservation at the local level. This land reservation was established under Presidential Proclamation No. 1252, signed by then President Fidel V. Ramos on 15 June 1998. It has a total land area of 28 km². It is the smaller of the two land reservations of UP Mindanao; the other located in Marilog District, Davao City, with a land area of approximately 41 km².

The purposes of the Laak-Veruela land reservation, as stipulated in Presidential Proclamation 1252, include: 1) research, extension and instruction; 2) forest rehabilitation and protection; 3) biodiversity conservation; 4) crops and livestock production and management; and 5) upland communities training and development.

³ The government’s definition of forest is area which at least 0.01 square kilometer and 60 meters wide that is at least 20% planted with forest trees (including seedlings and saplings), wild palms, bamboo or brush.

⁴ One of the seven constituent (autonomous) universities under the University of the Philippines System.

The Presidential Proclamation states that the area covered by the land reservation is located in Barangay Kidawa in the municipality of Laak (which used to be part of Davao del Norte, but now part of Compostela Valley province). Initial efforts of the University to gather baseline information were therefore concentrated in Kidawa. The final survey carried out in 2002 to establish the boundaries of the land reservation revealed, however, that the land grant falls almost entirely within Barangays Sta. Emelia and Sinobong in the municipality of Veruela, Agusan del Sur. The map prepared by the Municipal Planning Office of Veruela shows that almost 98% of the land reservation is within these two barangays⁵, prompting its renaming from “Laak Land Reservation” to “Laak-Veruela Land Reservation”. Incidentally, these two barangays also fall within the so-called “timber corridor of the Philippines”.

The University only has scanty data on the land reservation, and due to the circumstance mentioned earlier, these are data on the Laak part; there is hardly any data available on the Veruela side of the land reservation. Moreover, after almost nine years, the University’s efforts towards fulfilling the purposes for which the land reservation was established remain wanting. The situation has prompted the conduct of this research undertaking; the information that will be gathered will mainly assist UP Mindanao in carrying out its mandate in the land reservation. However, the data gathered are useful for other organizations to extend assistance to the communities in the land reservation.

Objectives

This paper presents two salient parts of the results of a UP System research grant in 2006, namely, baseline socio-economic profile of the communities in the land reservation and the development priorities of the residents, and their implication for forest management within and around the land reservation.

Methods

Actual data collection was preceded by entry protocol, which mainly involved meetings with the municipal mayor of Veruela and the barangay captains of Sinobong and Sta. Emelia. The meetings served as avenues for explaining the research objectives and for seeking permission and cooperation to conduct research in the area.

Primary data were gathered through focus group discussions involving four groups from each of the two barangays: the elected barangay officials, farmers, women, and the youth (15-25 years old). Each focus group consisted of five to eight members. The groupings ensured the homogeneity of participants and allowed maximum opportunity for expressing ideas.

The focus group discussions were conducted in December 2006 and January 2007. The questions centered on their groups’ perceptions about development and their priority concerns, the latter broadly categorized into five: livelihood, road

⁵ A barangay is roughly equivalent to a village and is the smallest unit of local government in the Philippines.

improvement, health, education, and environmental conservation. Each group made a ranking of their priority concerns, in the order of importance to them. The ranks were assigned weights, with the first priority concern bearing a weight of five (5) and the least priority a weight of (1). The sum of the weighted scores for each priority area were obtained to determine their respective ranks, with the area getting the highest sum obtaining the highest rank or categorized as the first priority.

Description of the communities

Barangays Sinobong and Sta. Emelia are contiguous and moderately elevated rural barangays in the municipality of Veruela, a land-locked third class municipality⁶ in the province of Agusan del Sur in the eastern part of Mindanao, Philippines. Barangays Sinobong and Sta. Emilia are accessible only through a logging road being located within the forestlands of Veruela, with an elevation of 500-750 meters above sea level, and have a combined land area of 67.644 km². Among the most important natural resources of Sinobong is the Logum-Baobo Watershed, while Sta. Emilia has the Kibalian Falls. Table 1 shows some comparative information about the two communities.

Sinobong is about 30 kilometers away from the Veruela *centro*⁷, and the only public transport available is single motorcycle, locally known as “*skylab*” (Figures 1 and 2 show variations of the “*skylab*”). It takes the “*skylab*” some 45 minutes to travel the 30-km distance from Veruela to Sinobong, and another 45 minutes to travel the short 3.5-km distance from Sinobong to Sta. Emilia. The very bad road condition from Sinobong to Sta. Emilia explains the time-spent in traveling the short distance.



Figure 1. The typical “*skylab*” traversing the best part of the road

⁶ A third class municipality has an annual income of P30 million to less than P40 million (approximately US \$705,800 – US \$917,600).

⁷ The area where the seat of local government is located and where commercial activities are normally concentrated.



Figure 2. A “skylab” when it rains.

Sinobong has a total land area of approximately 35.51 km², of which 43.82% has a slope of 30-50%. About 72% of the total land area is classified as forest land, while only 26% is classified as agricultural land. Sta. Emelia has a total land area of approximately 32.13 km², of which 33.23% has a slope of 30-50%. Roughly 85% of the total land area of Sta. Emelia is classified as forest land, while only 14% is classified as agricultural land.

Sta. Emelia figures in a boundary conflict between Laak of Compostela Valley which is in Region 11, and Veruela, in Agusan del Sur which is in Region 13. This results in the non-payment of taxes of Sta. Emelia residents, and the barangay in return, is a non-recipient of internal revenue allocations. The more impoverished state of things in Sta. Emelia, when compared to Sinobong, could be attributed to this.

The households in the communities generally cluster around the *centro* where the barangay hall, the market, and the elementary school could be found. Houses located relatively far from the *centro* also have a pattern of clustering, apparently to establish a support system with neighbors. Houses are made of wood extracted from the forests; most are one-storey structures and have galvanized iron sheets for roofing. Others remain makeshift, with nipa roofing. Roads are in a bad state of disrepair and are worse after the rains.

Despite the relatively small portion of land classified for agricultural purposes, farming remains the major source of livelihood in both areas. In Sta. Emelia, all households were engaged in crop farming and gardening in 2005; 89% of all households in Sinobong was also into farming and gardening during the same period. As with other communities living on forest fringes, the Sinobong and Sta. Emelia households converted forests to farms for livelihood. Households also extract forest resources for livelihood (13.5% in Sinobong; 10.4% in Sta. Emelia), but forest resources extracted are mainly trees for household construction and repair, or for firewood. The action by the communities to use forests and forest resources – also called natural capital or natural assets – support the theory of the Center for

International Forestry Research (CIFOR) for forest-based poverty alleviation, i.e., the use of forest resources for the purpose of lessening deprivation of well-being on either a temporary or lasting basis (Sunderlin, et. al., 2005).

Table 1. Comparative information about the communities (as of October 2005).

Variable	Sinobong	Sta. Emelia
Land area (square kilometer, km ²)		
▪ Total	35.513	32.131
▪ Agricultural land	9.213	4.615
▪ Forest land	25.698	27.302
Demography		
▪ Total population	3,032	1,191
▪ Young dependents (below 15 years old)	1,270	506
▪ Total number of households	592	250
▪ Average household size	5	5
Water and sanitation		
▪ Households with access to safe water	75.8%	42.4%
▪ Households with access to sanitary toilet	70.6%	40.0%
Education and literacy		
▪ Children 6-12 years old attending elementary school	72.3%	70.3%
▪ Children 13-16 years old attending high school	57.7%	45.5%
▪ Simple literacy ⁸	97.3%	93.8%
Income and livelihood		
▪ Households with income below the poverty threshold	65.5%	77.6%
▪ Households that experienced food shortage in the past three months	5.7%	39.6%
▪ Households engaged in crop farming	89%	100%
▫ Contribution to total household income	53.8%	70.5%
▪ Households involved in extraction of forest resources	13.5%	10.4%
▫ Contribution to total household income	3.7%	2.1%

Demographic Profile. As of October 2005, Sinobong had 592 households with a total population of 3,032 persons. On the other hand, Sta. Emelia had 250 households with 1,191 persons. On average, households in both communities have three children. Young dependency (children below 15 years old) in both communities was relatively high: 41.89% in Sinobong and 42.5% in Sta. Emelia. The population

⁸ Ten years old and above who can read and write.

density in Sinobong was 83 persons per km², while it was only 37 persons per km² in Sta. Emelia. This disparity in population density may be explained by the much larger forest area in Sta. Emelia compared to Sinobong. However, the more important factor was probably the relative inaccessibility of the former and its distance from the municipal center.

Access to Basic Social Services. Human capital is enhanced by access to basic social services such as education, health services, and electricity, among others. The accumulation of knowledge, skills and attitudes that result from education, and the attainment of good health, are necessary to sustain livelihoods and improve well-being. These are requisites for effective participation in socio-economic and political community affairs, and in both contexts, for ensuring ecological balance.

Sinobong and Sta. Emelia both have poor access to basic services, but Sinobong is comparatively better off, owing to its closer location to the municipal center and relatively more passable roads.

Education. With regards to education, the data revealed high simple literacy rates for the two municipalities in 2005: 97.3% and 93.8% for Sinobong and Sta. Emelia, respectively. However, participation rate among children 6-12 years old in elementary school was less than 75%, but slightly higher in Sinobong. This indicates that more than a quarter of children in this age group did not attend elementary school. It is worthwhile to mention that the Millenium Development Goals' (MDG) aim to improve human well-being by 2015 include the completion of primary education by all school age boys and girls, thereby affording them basic skills in reading, writing and numeracy.

Participation rate in secondary school was even lower for the land reservation communities: 57.7% for Sinobong and 45.5% for Sta. Emelia. The figures indicate high attrition rates from elementary to high school, which may be explained by the disparity in the available educational facilities in the two communities. Sinobong has an elementary school equipped with classrooms for all grade levels and with sufficient number of teachers. Sinobong also has a secondary school. Sta. Emelia, on the other hand, has an elementary school that offers complete elementary education but only has four classrooms and four teachers, making inevitable the conduct of multi-grade classes⁹ for two grade levels. There is no secondary school in Sta. Emelia, prompting elementary graduates who want to obtain secondary education to walk the 3.5-km distance between Sta. Emelia and Sinobong to attend high school classes; many families could not afford to pay for the transportation cost between the two communities.

Data on the adult literacy rate¹⁰, though unavailable, could therefore be expected to be much lower than simple literacy rates. It should be noted that human capital in the form of possessing knowledge and skills beyond simple reading, writing and numeracy is decidedly necessary in attaining sustainable development, which includes the foremost goals of improving well-being and environmental sustainability.

⁹ Classes for two grade levels are conducted simultaneously by one teacher in the same classroom.

¹⁰ The proportion of the population 15 years old and above with at least some secondary school education.

Water and sanitation. In terms of water and sanitation, the two communities in the land reservation have very different conditions. In Sinobong, 75.8% of households have access to safe water; it was only 42.4% in Sta. Emelia. This meant that roughly 25%-68% of households in the land reservation was vulnerable to diarrhea and other water-related diseases; diarrhea, schistosomiasis and skin diseases were major causes of morbidity in the land reservation, with the first two also identified as major causes of mortality, especially among children. The communal water system (Level I) continues to be the usual source of water for both communities. Access to hygienic and private sanitation facilities was even lower than access to safe water, or only 70.6% in Sinobong and 40% in Sta. Emelia.

The Human Development Report of 2006 (UNDP, 2006) reasserts that access to safe water is a basic human need and a fundamental human right. It also points that access to safe, hygienic and private sanitation facilities are among the strongest indicators for dignity, especially for women, due to cultural norms affecting behavior in practicing sanitation. Safe water and sanitation are also very powerful preventive measures for reducing child mortality. It should be noted that reduction of child mortality by two-thirds by the year 2015, and for all households to have access to safe water by then are among the Millennium Development Goals. While the link may not be that obvious, increasing the investments of local government units in water and sanitation may reduce its expenditures on health. It should be noted here that the two communities, especially Sta. Emelia continued to be challenged by severe lack of resources to allocate adequate funds for health concerns.

Health services. The communities each has a health center and a health worker (who does not necessarily have formal training in the health profession). However, focus groups revealed that the health center in Sta. Emelia was deprived of even a first aid kit, while that in Sinobong had some paracetamol tablets only. The nearest hospital is located almost 100 kilometers away. Barangay health workers of both communities shared that out of shame for the health center's condition, they would sometimes hide when residents were seen approaching the health center. The dilapidated condition of the roads makes the situation worse for those needing medical attention. Residents shared that it is not surprising when a seriously ill person would die before reaching the hospital, since the "skylab" is the only means of transport. These were among grim realities related by focus group members matter-of-factly and even jokingly, suggesting a sense of powerlessness among the residents to combat the situation, and worse, to proceed with their daily living accepting their plight.

Other major causes of morbidity and mortality in the communities are urinary tract infection, influenza, pneumonia, and tuberculosis. These are all preventable and curable diseases with the proper sanitation, nutrition and medical attention. It should also be noted that the MDG also targets to halt and reverse the incidence of tuberculosis and other diseases to improve nutrition and access to affordable drugs. One positive development was that malaria, which was a killer disease only two years back, had been eradicated.

Electricity. The two communities have access to electricity, but only a few houses around have electric connections. The main problem is the affordability of the cost of

electricity. Thus, most households continue to use firewood (sourced from the forests) for cooking and kerosene for lighting. Aside from the negative impact on the forest resources, the use of firewood for cooking had been found to have a negative effect on health (Smith, 2005).

Results and discussion

Meeting the Millennium Development Goal of reducing poverty by half in 2015 requires massive interventions for the two communities. The available data indicate that the communities in the land reservation are severely wanting in terms of possession of the human capital necessary for sustainable development.

All focus groups generally viewed development as improvement in their existing situation. However, there was a big difference in the priorities of each focus group in the two communities. Table 2 shows the development priorities of the various stakeholders in the community.

Livelihood. For the women of Sinobong livelihood was the first priority. However, they qualified that their more important concern is the alternative sources of livelihood which are related to or compatible with farming activities. This is because they believed that their skills match only the requirements of farm work. For a few whose spouses are into rice and/or corn farming—which are actually negligible and mainly for subsistence—certain aspects of farming keep them idle during slack time (the period between planting and harvesting). This suggests seasonal unemployment and even under-employment during the planting and harvesting season as they really do not spend the same time on the farm as their spouses.

The women wanted to have something productive to do on their own, an indication of asserting their capability for productive work. Many women thought of producing slippers, bags and mats from banana stalks, but lack the skills and the seed money. Some women from Sta. Emelia wanted to go into the bakery business to supply their community with fresh bread everyday; residents seldom have bread as this has to be sourced from far-away Veruela. This suggests that the FGD participants considered human capital in the form of skills, and financial capital in the form of access to start-up funds or credit, as important components of putting up a livelihood. More importantly, they are concerned on augmenting household income. This concern is understandable considering the extent of poverty in the two communities. About 77.6% of all households in Sta. Emelia and 65.5% of all households in Sinobong were living below the poverty threshold¹¹. This was much higher than the national average of 39%.

Livelihood was also the first priority of farmer groups in both communities. Both groups also shared the need for some supplemental and sustainable sources of livelihood. Currently, banana (local variety known as *lakatan*) is the major crop produced in both communities. Farmers have small banana farms usually not more than 0.02 km², which is generally situated far from their place of residence. The

¹¹ In 2005, the annual per capita poverty threshold for rural areas was estimated at P12,227 (roughly US \$245). With a household size of five, the average annual per capita income that year was P5,397 (US \$108) in Sta. Emelia and P6,192 (about US \$124) in Sinobong.

women usually do not participate in activities in the banana farms owing to the distance from their residence and the nature of the tasks involved, even until the produce is sold. The need for supplemental source of livelihood is mainly based on the fact that for most families, the income from growing bananas is barely enough to secure their most basic needs.

Table 2. Ranking of the priority concerns in the two communities.

Community/ priority concern	Focus group*				Total weighted score**	Overall rank
	Barangay officials	Farmers	Women	Youth		
<i>Sinobong</i>						
Livelihood	2 nd (4)	1 st (5)	1 st (5)	3 rd (3)	17 (1 st)	1 st
Road improvement	1 st (5)	2 nd (4)	2 nd (4)	4 th (2)	15 (2 nd)	2 nd
Education	4 th (2)	3 rd (3)	4 th (2)	1 st (5)	12 (3 rd)	3 rd
Health	5 th (1)	4 th (2)	3 rd (3)	2 nd (4)	10 (4 th)	4 th
Environmental conservation	3 rd (3)	5 th (1)	5 th (1)	- (0)	5 (5 th)	5 th
<i>Sta. Emelia</i>						
Road improvement	1 st (5)	2 nd (4)	1 st (5)	2 nd (4)	18 (1 st)	1 st
Livelihood	2 nd (4)	1 st (5)	3 rd (3)	3 rd (3)	15 (2 nd)	2 nd
Health	4 th (2)	3 rd (3)	2 nd (4)	5 th (1)	10 (3 rd)	3 rd
Education	5 th (1)	4 th (2)	4 th (2)	1 st (5)	10 (3 rd)	3 rd
Environmental conservation	3 rd (3)	5 th (1)	5 th (1)	4 th (2)	7(5 th)	5 th

*Figures in parenthesis indicate the weighted score.

**Figures in parenthesis indicate the overall rank.

Road improvement. Roads can generally facilitate the movement of people and goods. Thus, roads are valuable physical capital to people especially those who reside in remote areas. Good roads are also important inputs to livelihood and income security. This is probably why the groups of barangay officials and farmers in Sinobong and Sta. Emilia gave highest priority to road improvement. For the barangay officials, road improvement would mean an improvement in the condition of the communities. The farmers were more specific, stating that road improvement would allow them to bring their produce to the market, or a higher price for their produce. Due to the dilapidated roads the only means of public transportation is the “skylab”. The absence of competition—and regulation—allows the “skylab” drivers to charge exorbitantly high fare rates. Furthermore, the bad road condition results to

dependence of farmers on traders for selling their produce, making the farmers mere price takers. The farmers therefore consider road improvement as a means to lower transport cost, allowing them to sell directly to the municipal market at better prices than what the traders offer, which to them would translate higher income for them.

Road improvement was high priority even among the other groups. It was the first priority of the women in Sta. Emelia, and second priority of both the women's group in Sinobong and the youth group in Sta. Emelia. Road improvement was also translated by other groups into lower transport cost that would facilitate commodity flows in and out of the communities, which could mean lower cost of consumption goods available in the communities. For the youth group, lower transport cost would mean lesser walking time to and from school, because this will make the transport less unaffordable.

Education. Improvement in this area was the highest priority for the youth groups, though the specific concerns in the two communities vary. The youth group in Sinobong cited that while school participation and simple literacy were relatively high, much remains to be done in terms of actual literacy, specifically on the three R's (reading, writing and arithmetic). Citing themselves as examples, the members of the group shyly shared that although they were about to finish their secondary education, they still had much difficulty understanding and communicating in English. They were also not confident of their numerical ability, and felt severely inadequate in their knowledge on the sciences. At the same time, they were convinced that education is their way out of poverty. This is the main reason why they wanted an improvement in the delivery of education. This meant not classrooms and teachers, but also upgraded teaching methods, books and laboratory facilities.

For the youth group in Sta. Emelia, the more urgent concern was for more classrooms and teachers. Also citing themselves as examples, the youth pointed to the conduct of multi-grade elementary classes as disadvantageous to students. The usual way of conducting such classes is for the teacher to give seat work or an exam to pupils in one grade level (with an instruction for them to remain quiet), while simultaneously discussing lessons to pupils of another grade level. The process is then reversed a number of times during the school day. In this community, there are only four classrooms and four teachers for the complete six-year elementary education. Thus, Grade 3 and 4 pupils would share the same classroom and teacher, and another classroom and teacher would be shared by Grades 5 and 6 pupils. The Sta. Emelia youth group considered this as a very ineffective way of learning, such that they felt ill-prepared for secondary school. At the same time, members of the group also believed that their parents were too poor to send them to secondary school.

Health. Compared to concerns about livelihood and road improvement, health matters were surprisingly relatively less important for most groups. The concerns revolved mainly on obtaining additional medicine and information on disease prevention. For the groups, the information and education campaign on disease prevention is very important considering the lack of medical facilities and supplies, and the absence of trained health care personnel in their communities.

Environmental conservation. The concerns for the environment are very low in the priorities of the two communities. In fact, the environment was not even considered a priority concern of the youth in Sinobong. For them, there was no problem about the environment, though certain parts of the forest were visibly denuded. Environmental conservation was at the bottom of the priorities of the women's group in both communities, who stated that they did not know how to protect the environment anyway. Only the barangay officials placed relatively high priority (third among five areas) on environmental conservation.

This position of the barangay officials may partly be explained by the fact that a national government policy (the Local Government Code of 1991) mandates the devolution of environmental protection to local government units. This is actually a policy outcome anchored on the Philippine government's realization of its limited capacity in curbing the rapid resource depletion happening in many parts of the country (Ocampo-Salvador, 2002).

The local government officials, therefore, are legally responsible for the protection and conservation of the environment. The overall low concern for the environment, which for the communities focused on forests, may be traceable to the fact that forests resources are still abundant. In fact, only forest resources are highly accessible to the communities to support their livelihood. This supports the theory that rural livelihoods tend to maximize utilizations of assets which are most abundant – the natural assets (Ellis, 2000).

Except for barangay officials, however, the other groups were apparently more concerned with issues that directly affect them, rather than with the protection and conservation of the forest. This kind of position relative to the environment may help explain why illegal logging continues to be a major concern in the two communities, long after the logging companies had left the area. Some farmers in the focus groups even admitted to be among those who continue to clear some parts of the forest areas. However, they were also quick to justify that this was necessary to expand their farms, since farming is their only source of livelihood.

The above situation is quite alarming considering that much of the area is classified as forest land. And because a large portion of the forest remains intact, people did not seem to appreciate the necessity of protecting the environment through forest conservation. What was more apparent was that the members of the communities did not consider themselves responsible for protecting the environment, and did not seem to understand the long-term benefits of forest management and conservation. This reaction is not surprising considering the communities more immediate concern for survival. This short-term concern is coupled with the absence of external forces (such as non-governmental organizations) which can educate the communities about their role in environmental management and protection.

Conclusion

The results show that the priorities of various stakeholders in the communities studied was largely influenced by what directly affected them the most. With the residents' livelihood activities bringing only meager income and with their poor

access to social services and physical infrastructure, the communities inevitably considered livelihood-related concerns as their priorities: a well-maintained road network, and access to social services, particularly education for the youth. Forest management and conservation was invariably at the bottom of the priorities, owing to the relative abundance of existing natural resources and the lack of information, education, and communication (IEC) campaigns on the importance of environment. These pose great challenge to those who are bestowed with the legal responsibilities for environmental management and protection. Serious efforts for environmental sustainability plays a vital role as livelihoods are currently anchored on environmental assets, and are likely to remain so for quite some time.

References:

- Ellis, F. 2000. *Rural Livelihoods and Diversity in Developing Countries*. Oxford: Oxford University Press.
- Francisco, H. A. and M. S. de los Angeles (ed.). 2003. *Economy & environment: selected readings in the Philippines*. Manila: EDM Press.
- IBON Databank and Resource Center. 2006. *The state of the Philippine environment, 3rd edition*. Quezon City, Phil: IBON Books.
- Ocampo-Salvador, A. 2002. *Environmental governance in the Philippines*, In: J.I.A. Angeles (ed.). *Philippine governance report: studies on the management of power*. Manila: Kayumanggi Press, Inc.
- Smith, K. R. 2006. Health impacts of household fuelwood use in developing countries. *Unasylva*, Vol. 57, No. 224, pp. 41-44.
- Sunderlin, W., A. Angelsen, B. Belcher, et. al. 2005. *Livelihoods, forests, and conservation in developing countries: an overview*. *World Development*, Vol. 33, No. 9, pp. 1383-1402.
- United Nations. 2000. *Millennium Development Goals*.
- United Nations Development Program. 2006. *Human Development Report 2006. Beyond scarcity: Power, poverty and the global water crisis*. New York: Palgrave Macmillan.
- Utting, P. (ed.). 2000. *Forest policy and politics in the Philippines: the dynamics of participatory conservation*. Manila: Ateneo de Manila University Press.
- Waylen, K. 2006. *Botanic gardens: using biodiversity to improve human well-being*. Richmond, UK: Botanic Gardens Conservation International.