The Future of CBNRM in the Philippines: The Impact and Challenge of Global Change on Philippine Natural Resources Policy*

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In the Philippines, CBNRM has come to stay. Or has it? It is certainly enshrined as a central principle in natural resources policy and has become accepted as a major strategy in the country's management of its natural resources and environment. It has powerful political constituencies behind it and attempts to overturn or reverse this trend, in recent years, have not been successful. But there are problems in both policy formulation and implementation and as a consequence, there is a gap between policy and reality. While these problems are rooted in the country's political economy and history as well as the limits imposed by bureaucratic and governance constraints[1], global economic, environmental and technological change may further aggravate this gap.

This paper probes this question further and looks at the impact and challenge posed by global trends to the future of CBNRM in the Philippines. In particular, we look at thr specific issues – global economic integration, climate change, and modern biotechnology[2] – and ask the following questions: (1) How and to what extent do these global trends undermine the effort to implement CBNRM? (2) Conversely, what opportunities do these global issues provide to further promote and operationalize CBNRM? In asking these questions, we do not begin with a belief that CBNRM by itself can be sufficient to deal with all the challenges posed by global change or that it is a "catch all" solution to the negative consequences of globalization. We think, however, that CBNRM, at least in the area of natural resources, offers the Philippines urgently needed political and legal space to be innovative in dealing with global challenges. At the very least, CBNRM can be utilized as a "safety net" to minimize the threats posed and maximize the opportunities provided by these challenges.

I. GLOBAL ECONOMIC, ENVIRONMENTAL AND TECHNOLOGICAL CHANGE: ISSUES AND CHALLENGES

A. Economic Interdependence and Globalization: Implications for Mining and Forest Policies

Among the most dominant characteristics of the present-day world is the increasing economic interdependence of peoples and nations due to liberalized and increasing flows of goods, services, and information all over the world. The World Trade Organization (WTO) is now commonly seen as the global trade body tasked to oversee and administer international trade rules designed to progressively lower trade barriers to the flow of goods and services among countries. The Philippines became a founding member of the WTO on 14 December 1994.

The WTO Agreement and its annexed agreements created an international trading regime characterized by: (1) liberalized market access for goods through the elimination or

reduction of tariff and non-tariff barriers, and the binding of tariffs in agricultural and non-agricultural goods; (2) the legal obligation on the part of the contracting states to use only tariffs as allowable barriers to trade rather than non-tariff measures (such as environmental, health, or other regulatory standards) so as to ensure transparency in the imposition and application of trade barriers; (3) the imposition of binding trade disciplines that sought to provide equality of legal treatment between imported and domestic goods; (4) the inclusion of textiles and clothing, agriculture, services, trade-related aspects of intellectual property rights, and trade-related investment measures, as the subject of negotiations, agreements, and trade disciplines; and (4) an institutional framework within the WTO for binding and enforceable settlement of trade disputes.

WTO Members, including the Philippines, are required to "ensure the conformity of its laws, regulations and administrative procedures with its obligations" under the various WTO agreements. Philippine WTO accession and the country's engagement in globalization have also been cited by the Philippine government in both the Ramos and Estrada administrations, as the justification for past efforts under those administrations to amend the 1987 Philippine Constitution. A large number of laws were enacted that sought to directly or indirectly implement these treaty obligations in virtually all sectors of the Philippine economy. In the area of natural resources, laws have been changed, or their regulations revised, to promote natural resource exports. Changes in Philippine mining and forest laws illustrate this. Although these changes began even before accession by the Philippines to the WTO Agreements, they are consistent with this trend towards global economic integration and can be claimed to be consistent with the requirements of these agreements.

Mining Policy in the Philippines

Republic Act No. 7942, the Philippine Mining Act of 1995, sets up the regulatory and institutional framework for the entry and operations of large-scale commercial mining enterprises in the country and providing the investors thereof with fiscal incentives over and atop that of existing investment incentives programs of the Government. Although not enacted as a direct result of Philippine accession to the WTO, the Philippine Mining Act of 1995's ultimate objective is the increasing integration of the Philippine mining industry in the global minerals market as a major source of mineral commodities and thus contribute to national economic growth. Immediately after its enactment, more than 100 foreign and local mining firms, including the major global corporations, applied for mining exploration and development rights in the Philippines.[3] However, due to a successful campaign by many stakeholder groups – including the Catholic Church, environmental organizations, indigenous peoples and local communities, the government has approved very few agreements.

Increased mining industry activities will inevitably create increased social tensions in the uplands as mining claims encroach on lands occupied and claimed by indigenous communities as their ancestral domains. The property and resource tenurial rights that a mining claimant obtains under the Philippine Mining Act of 1995 – i.e. virtually exclusive and monopolistic rights over the extraction of and proceeds from mineral

resources and the associated natural resources located within the mining area – cannot be compatible with the effective implementation of a community-based natural resource management regime. Priority in terms of access to mineral rights and the associated rights of access and tenure to land are given to mining corporations and other private interests, rather than to resident local communities whose own development interests might not necessarily be in favor of adopting and implementing a large-scale mining project in their area.

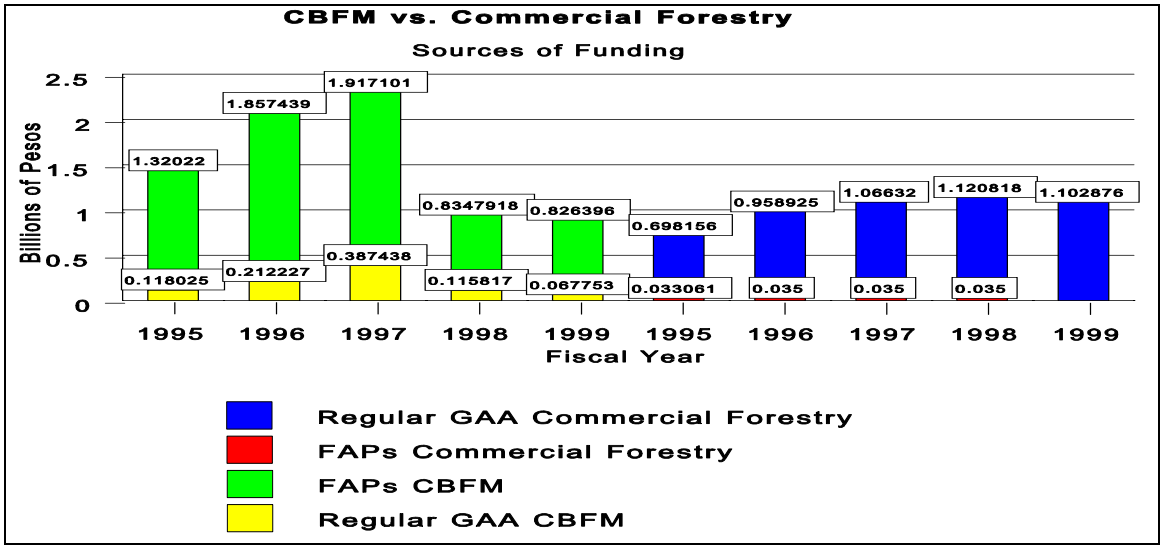
Forest Policy in the Philippines

The thrust towards resource extraction and export is also evident in Philippine forestry law and policy. Without any forests to log over, production of forest-based products for both domestic consumption and exports decreased, increasing reliance on forest products imports. This has also provided the economic impetus for changes in the forest policy regime in the Philippines in favor of forest industrialization and commercialization to the detriment of forest communities. Industrial tree plantations are seen as the answer that would keep the commercial forestry sector in existence, contribute to national export earnings, and lessen national dependence on forest product imports (primarily of logs). The country's WTO obligations therefore provide a policy and legal rationale for future changes in Philippine forestry policy in favor of increased commercialization of forestry resources.

The mid-1990s saw a shift in policy focus in favor of community-based forest management (CBFM), stemming from a combination of civil society advocacy and multilateral development bank pressure. This policy shift towards community-based forest management was institutionalized by the issuance in 1995 by President Fidel Ramos of Executive Order No. 263 (1995) adopting community-based forest management as the national strategy in managing the country's forest resources. However, even as the DENR sought to implement Exec. Ord. No. 263 (1995), it continued to implement and support the maximal commercial utilization of forest resources through industrial tree plantations and tree farms and through such programs as IFMA (Industrial Forest Management Agreement) by refining the regulatory framework for such activities, and by making its "community-based" programs on forest resource management more accommodating to private sector commercial interests and towards the increased commodification and marketing of the country's forest resources.

In short, the current CBFM Program seems to have effectively departed from focusing on maximizing community control and tenure over forest resources as the path towards forest sustainability, in favor of making local forest-dependent communities as local and global timber producers. Although this might provide some short-term economic benefits for those communities that are able to set up the appropriate market linkages that will enable them to establish and maintain a market for their forest products, many other factors would conspire to minimize the economic benefits that the greater majority of CBFM communities might be able to obtain from their project.

Although its official policy rhetoric favors a community-based approach to forest resource management, DENR budget figures reveal a clear bias in favor of supporting forest industrialization. The CBFM Program is dependent on foreign assistance (either loans or grants for projects or programs) while the IFMA program is funded from regular appropriations.



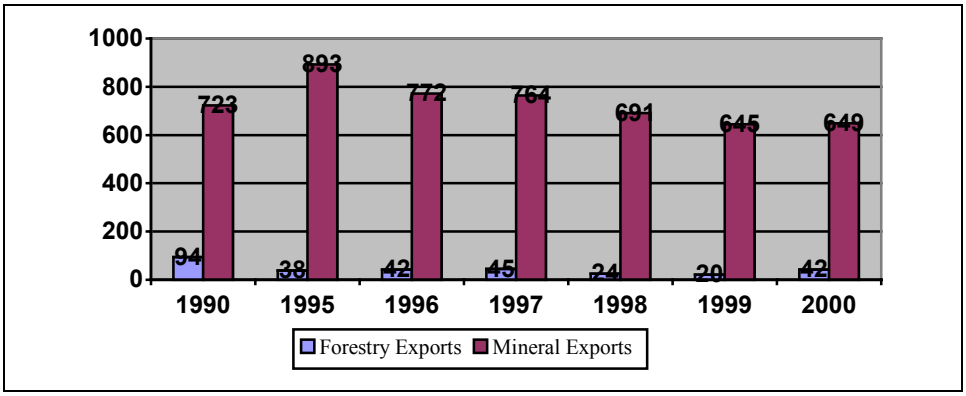
Sources: General Appropriations Acts 1995-1999, DENR budget.

Globalization as Driver for Natural Resources Policy

The continued integration of the Philippines into the global economy as a direct and indirect result of its WTO treaty obligations, therefore, provides both the impetus and the rationale for the further commercial industrial development and exploitation of the country's natural – i.e. mineral and forest – resources through changes in law and policy. The regulatory changes effected by the 1995 Philippine Mining Act and the various forestry issuances of the DENR, as discussed above, are the foundations for ensuring that the development of the country's mineral and forest resources are made subject to global market forces and pressures (such as those embodied by WTO obligations), rather than to the development needs of the local communities that are primarily dependent on these resources for their livelihood.

The changes in the country's mining and forestry laws and regulations in the mid- and late 1990s were intended to spur private sector investments in order to boost the share of the commercial forestry and minerals sectors in the country's export trade. The irony is that Philippine forest product and mineral exports have been decreasing on a yearly basis since 1995.

Value of Forest and Mineral Exports: 1990-1999
US$ Million



Source: National Economic and Development Authority, http://www/neda.gov.ph
Note: Philippine forestry exports do not include logs or lumber due to a ban imposed on such exports

These drops are due not to comparative trade disadvantages but rather due to other factors. In the case of forestry, the decrease in export receipts was due to the imposition of a ban on lumber exports since 1992 (lifted in late 1997 but re-imposed in June 1998), large-scale commercial logging (both the cause and effect of the virtual disappearance of commercially viable natural forests in the country), and the long lag time between initial investment in an industrial tree plantation and the start of harvest and export. In the case of mining, weak global mineral prices and the long lag time between initial mineral exploration and actual production and exports play major roles in the decreasing external trade performance of this sector. However, stronger economic growth in some European and most Asian countries, and the United States, is projected to increase the demand for mineral commodities globally over the next few years, possibly resulting in stronger mineral exports from the Philippines.

In conclusion, it should be pointed out that a primary objective of CBNRM is wealth creation. Community control over natural resources will ultimately be irrelevant if it does not contribute to the economic well being of resource dependent communities. The question is whether the corporate and industrial track is the best strategy to make this happen. Because commercial mining and forestry, as implemented in the Philippines, is fundamentally inconsistent with community rights, the authors believe that following such a track is not going to be ultimately fruitful. Fortunately, as discussed in Part II, global economic integration, as illustrated by the WTO Agreements, provide for opportunities where wealth creation and economic prosperity, in the area of natural resources, can be pursued while following community based approaches in natural resources management.

B. Climate Change: Implications for Forests and Coastal and Marine Resources

Global climate change, expected to result in global warming, is the most serious environmental problem the world faces. While the greatest contributors to global warming due to increases in greenhouse gas emissions are the industrialized countries, the greatest impacts of climate change will be felt first and seriously by the poorest

countries of the world. Over the long term, climate change is likely to have a very serious impact on ecosystems and the world's poorest are the most vulnerable as they depend heavily on natural resources for their food and livelihood. Their physical security is also threatened by the threat of sea level rise and extreme weather events that climate change is expected to result in. Furthermore, these countries do not have the necessary resources to develop and implement the necessary adaptation measures.

Global concern about climate change crystallized into negotiations leading towards the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992. Article 2 of the UNFCCC calls for "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." The UNFCCC however did not impose legally binding quantitative emission limitations on its parties. Subsequently, in December 1997, the Kyoto Protocol to the UNFCCC was negotiated and adopted to create these obligations on Annex I Parties, i.e., industrialized countries of the North. The Philippines ratified the UNFCCC on 2 September 1994. It signed the Kyoto Protocol on 15 April 1998, but has not yet ratified it.

As a developing country, the Philippines' treaty obligations under the UNFCCC most directly relevant to CBNRM include the management, conservation and enhancement of sinks and reservoirs of all greenhouse gases including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems. However, unlike developed countries and the so-called Annex I countries, the Philippines does not have any quantitative greenhouse gas emission reductions commitments, whether under the UNFCCC itself or the Kyoto Protocol.

In terms of impact of climate change, both forest resources and marine and coastal resources are priority areas of concern. In the case of the latter, adaptation strategies need to be designed, adopted and implemented now if the worst impacts of climate change are to be dealt with. CBNRM strategies can play a prominent role in such efforts.

Climate Change and Forests

There are two important links between forests and climate change. First, global warming could have a negative impact on existing forests and aggravates forest destruction and loss. Second, forests, as carbon sinks, can play an important role in the regulation of the earth's temperature by storing large quantities of carbon dioxide and water. This section focuses on the latter as it is most relevant to CBNRM.

Countries can promote the enhancement of forests as carbon sinks in two ways. First, they can prevent further loss of existing forests through conservation efforts. This is the preferred method from a biodiversity point of view. Where this is the strategy adopted, CBNRM can play an important role. Second, countries can pursue reforestation strategies and, in particular, promote forest and timber plantations. The latter strategy, to the extent that the Climate Convention and the Kyoto Protocol encourages it, can have enormous implications for forest policy in the Philippines, including CBNRM. Climate

change can become a significant driver for industrial forestry at the expense of other approaches to managing forest resources.

Carbon sequestration programs targeted at forests will require large areas of additional land in order to offset a large quantity of carbon releases. Calculations as to the usefulness of forests as carbon sinks for purposes of addressing climate change are heavily dependent on increases in the land area devoted to forest plantations in tropical countries such as the Philippines. The expansion of forest plantations in the Philippines will have adverse environmental and socio-economic impacts. Although expanded Philippine timber production for the global market through the accelerated establishment of forest plantations may result in a short-term increase in carbon storage capacity, and commensurate increases in export earnings, these will be at the expense of existing natural old and secondary growth forests, and the economic displacement of local forest resource-dependent communities. Many cases have been documented in the Philippines, as well as in Africa, Eastern Europe, and South and Central America, about the adverse socio-economic impacts of the establishment of commercial industrial forest plantations on local communities – such impacts including increased economic marginalization and displacement, lack of legal redress, insecurity of resource tenure, cultural fragmentation, and, in some cases, militarization.[4]

Furthermore, focusing on the role of forests as carbon sinks and as raw materials for the global timber market, without looking at the other social and ecological functions of forests in the lives of communities, can lead to a focus on establishing industrial tree plantations composed of fast-growing (usually monoculture) tree species since carbon absorption occurs best in young, fast-growing trees. The harvesting (i.e. logging) of old-growth natural forests will result in carbon emissions, and their replacement with commercial forest plantations being managed for harvest typically will not sequester or absorb as much carbon as the old-growth forest did.

Rather than enhancing community empowerment by providing local forest communities with the tenurial right to manage their own natural and forest resources, establishment of plantation forests will ensure that community economic, social, and political disempowerment occurs. In a country like the Philippines where land is a scarce natural resource, carbon-sink forest plantations are more likely to be established in areas in which tenurial property rights are weak or poorly defined, i.e. in public forestlands in which most remaining natural forests in the country are located, rather than in areas in which the system of private property rights is strongly established such as urban and agricultural areas. It is also not realistic to expect that urban and agricultural areas can be transformed into major carbon sinks (although urban reforestation is a viable though limited strategy). Hence, the preferred areas will clearly be existing natural forests or lands which, though denuded, are classified as forests and are claimed by state to be within its sovereign domain.

Plantation forest establishment as a means for climate change mitigation is, however, not the correct solution. It will only exacerbate carbon dioxide emissions as old growth forests are replaced by net carbon emitting open agricultural or brush land and plantation

forests. Only a genuine community-based forest management program that is intended to ensure tenurial security of local communities to the land and the natural resources on which they depend can ensure that the country's remaining old growth forests are protected and conserved, and the growth of its secondary growth forests encouraged.

There is, at present, no official government policy on climate change and forestry. But with the expected coming into force of the Kyoto Protocol in the next two years, the Philippines will be faced with fundamental choices in this area. Should it follow the industrial forestry track or will it use the opportunities provided by the Protocol to promote effective community based forest management?

Coastal and Marine Resources: Impacts of Climate Change

The Intergovernmental Panel on Climate Change (IPCC) has identified coastal zones and marine ecosystems as highly vulnerable to impacts of climate change.[5] Impacts include sea level rise and increased intensity of extreme weather events. Countries in the Caribbean, the Pacific and Sub-Saharan Africa are the ones that will be severely affected. The Philippines is no exception.

The greatest impacts to coastal and marine resources may result from their vulnerability to the .09 to .88 meter sea level rise projected to result from climate change. Sea level rise quite obviously results in shoreline displacement, through inundation and storm surge, as well as exacerbated coastal erosion. Higher sea levels provide a higher base for waves and floods during storms, and can greatly exacerbate damages to coastal areas and communities as a result. If coral reef accretion cannot keep pace with sea level rise, reefs will be lost potentially further decreasing sediment supply to the shoreline and increasing erosion. Already, increasing sea surface temperatures associated with the recent El Nino events have led to mass coral bleaching events worldwide in the last few years making coral reefs the most vulnerable to climate change.

While it remains to be seen exactly how rising temperatures will affect offshore fisheries, it is fairly clear that coral reefs and the inshore fisheries dependent on them are extremely vulnerable to rising temperatures. Such shifts will have major implications for local fishermen whose livelihoods are based on catch levels in certain waters.

Finally, coastal and marine resources are particularly vulnerable to any increases in extreme weather events such as cyclones. Data is still inconclusive as to whether or not hurricane and cyclone wind speeds will increase under climate change conditions, but the IPCC predicts increased peak and mean precipitation during such extreme events that will result in increased flooding and damage to coastal areas.

These physical and biological impacts will all have direct impacts on coastal communities throughout the Philippines.[6] Specific impacts include those on food security as a result of declining fisheries and the degradation of coral reefs and other critical marine habitats and on public works infrastructure (transportation systems, protective dams, etc.) that are at risk due to sea level rise and extreme weather events. Likewise, tourism will be severely affected.

These impacts of climate change have a profound impact on all coastal communities in the Philippines. Indeed, they have serious implications on how the Philippines should be managing and utilizing its coastal and marine resources. Strategies for adaptation to climate change need to be an important element in national coastal and marine policy. Local communities, in making utilization and management decisions, must take into account its impacts. At the same time, while climate change is a serious threat, the need to adapt to it has resulted in new opportunities to promote sustainable agendas in coastal and marine policy. As discussed in Part II, mechanisms in the Framework Convention on Climate Change provide such opportunities on how adaptation strategies can be designed and implemented and how CBNRM could play a part in such strategies.

C. Modern Biotechnology and the Use of Genetic Resources: Implications for Biodiversity and Community Rights

Insofar as global biodiversity loss threatens global food security, especially the poor in developing countries, so too will national biodiversity loss impact adversely on the country's food security. This loss is also linked to the loss of cultural diversity, including languages, especially of traditional farming and indigenous peoples' communities. This can lead to the loss of traditional indigenous knowledge on how to use the diverse genetic resources of tropical forests. The loss of traditional knowledge relating to the uses of biodiversity has been attributed to three factors: (1) loss of territorial control; (2) the introduction of non-traditional or "modern" agricultural or medical practices; and (3) the misappropriation of traditional knowledge by outside actors.

In the past, encroachment into traditional indigenous and local territories usually in tropical forest areas for commercial agriculture or large-scale resource extractive activities such as logging, mining, and oil drilling was the major factor for increased marginalization of traditional farming and indigenous communities and increased biodiversity and cultural diversity loss. Biodiversity and cultural diversity loss were intricately linked to national policies governing access to land and natural resources, as well as to the recognition of community rights. More recently, however, the advent of modern biotechnology, which uses genetic resources as source material, presents new challenges to both resource tenure as well as the intellectual property rights of indigenous and local communities.

The Challenge of Modern Biotechnology

Modern biotechnology resulted from the development of an integrated agricultural, food, and pharmaceutical production and marketing system primarily in the North. Agricultural biotechnology is focused on the development of herbicide-tolerant crops and on pest- and disease-resistant crops. It is closely linked to the industrial marketing of food products obtained from genetically modified plants and animals. Theoretically, modern biotechnology can result in significant benefits to all societies, including developing countries. Benefits include increased food production, more nutritious food and more efficient agricultural processes (including potentially, although this is still

debated, lesser chemical input). For now, however, most of the arguments for pushing on with biotechnology rely on the potential technological advances that can make products more commercially attractive, and incidentally, making more profits for their producers and marketers. On the other hand, the arguments for taking a precautionary or "go-it-slow" approach to biotechnology are based on the possible ecological, social, and economic impacts of biotechnology products on local communities, especially in the South, and on local environments.

Pharmaceutical, food, environmental, and agricultural biotechnology activities have been concentrated in Northern countries that have the capital and industrial infrastructure needed to make biotechnology research, development, and commercialization profitable. The high capital costs associated with biotechnology innovation has meant that only a small number of Northern multinational corporations (mainly agro-chemical and pharmaceutical corporations) play a dominant role in agricultural biotechnology development. The globalization of the biotechnology industry means that changes in both national and international regulation of biotechnology activities will greatly affect how the industry does business and maximizes profits. This has given the biotechnology industry the impetus to seek to influence government regulatory decision-making to create a favorable regulatory climate at home and abroad.

The activities of the biotechnology industry, with its close links to the academe and governments, will have implications for the Philippines' farmers and indigenous peoples and for the country's biodiversity. Although most modern agricultural biotechnology products are targeted at the large-scale commercial agricultural farmers and markets in both developed and developing countries, there is progressive movement from the realms of large-scale commercial farming towards subsistence agriculture with respect to biotechnology applications.

This shift will affect adversely many subsistence farmers. For example, a shift to transgenic crops produced by Northern biotechnology companies by such farmers could lead to the loss of control of their farming systems and into dependence on outside sources of seeds and crop inputs, as well as the loss of local crop varieties more suited to the ecological conditions of the locality and even social and cultural dislocation. Furthermore, with respect to both the agricultural and pharmaceutical biotechnology industries, Northern domination in biotechnology continues to exacerbate the flow of genetic resources from the South to the North in the form of germ plasm or genetic material sample transfers obtained from plants, animals, or humans in the South. Northern biotechnology corporations have been patenting genetic materials and organisms derived in whole or in part from Southern-sourced genetic materials.

The International Response: The Convention on Biological Diversity

While the emergence of modern biotechnology can be a considered a threat to the interests of many local communities in developing countries, the international response to its challenges offers such countries some openings on how to creatively respond.

The role of biotechnology in biodiversity protection, and consequently, on community natural resource tenure is governed in the international arena by the UN Convention on Biological Diversity (CBD). The Philippines ratified the CBD on 8 October 1998 and is a party to the Convention whose objectives are: the conservation of biological diversity; the sustainable use of its components; and the fair and equitable sharing of benefits arising from the use of genetic resources.

The core of the CBD framework for the regulation of access to genetic resources is found in Article 15. This article has four basic concepts: (a) State sovereignty over genetic resources; (b) Facilitating access between Parties; (c) Access subject to mutually agreed terms; and (d) Access subject to prior informed consent.[7] Article 15 is further supplemented, informed, and contextualized by other CBD provisions, the most important of which is Article 8(j) on the recognition, preservation, and promotion of indigenous and local communities' knowledge, innovations, and practices relevant for the conservation and sustainable use of biological diversity, with the approval and involvement of such communities, and to "encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices".

The CBD also requires that the access to and transfer of biotechnology to developing countries must ensure that any intellectual property rights relating to genetic resources that part of such biotechnology are adequately and effectively protected. Patents and trade secrets relating to products developed using genetic resources are the IPRs most likely to be relevant to the technology transfer and benefit-sharing provisions of the CBD. The WTO's Trade-Relates Aspects of Intellectual Property Rights (TRIPS) Agreement lays down the international framework for the protection of intellectual property rights, including patents and trade secrets, together with other international treaties governing intellectual property rights over various works. As a general rule, the TRIPS Agreement requires WTO Members – such as the Philippines – to recognize and protect the intellectual property rights of citizens of other WTO Members.

Article 19(3) of the CBD required the Parties to negotiate a protocol to govern the "safe transfer, handling and use of any living modified organism resulting from biotechnology that may have adverse effect on the conservation and sustainable use of biological diversity." As a result, in January 2000, the Parties to the CBD negotiated the Cartagena Biosafety Protocol. It constitutes the general international regulatory framework for cross-border transfer of "living modified organisms" or genetically modified organisms "that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health." The Philippines has signed the Cartagena Protocol but has not yet ratified it.

The Philippine legal framework governing biotechnology and genetic resources is made up of scattered provisions in various laws[8] and an administrative regulatory mechanism set up by Presidential Executive Order No. 247 (1995) and Presidential Executive Order No. 430 (1990). These laws and regulations stress that access to the country's genetic resources is regulated by the State, and is subject to the consent of the indigenous

communities in whose ancestral domains or lands the genetic resources are sourced. Philippine law also clearly requires that indigenous community intellectual property rights are to be recognized and respected, and that the source community should also benefit from any authorized commercial use of their traditional knowledge.

The policy and administrative mechanism for the regulation of bioprospecting activities in the Philippines was set up by Presidential Executive Order No. 247 (1995).[9] The policy and administrative mechanism for the regulation of bioprospecting activities in the Philippines was set up by Presidential Executive Order No. 247 (1995).[10] This order has the following key elements:

- Requirement of prior informed consent (PIC) of the concerned local communities and of the concerned indigenous community if bioprospecting is done within the ancestral lands or domains of such indigenous community;
- In addition to local or indigenous community PIC, bioprospecting must also be done pursuant to a research agreement (either commercial or academic research agreement) entered into with the Philippine government;
- creation of the Inter-Agency Committee on Biological and Genetic Resources (IACBGR) attached to the Department of Environment and Natural Resources (DENR) as the regulatory body to implement the executive order; and
- provision of a system of administrative remedies, sanctions, and penalties for violation of the provisions of the order.

Presidential Executive Order No. 430 (1990) provides the administrative regulatory mechanism for genetic engineering in the Philippines through the creation of the National Biosafety Committee of the Philippines (NBCP). In 1991, the Department of Science and Technology issued the Philippine Biosafety Guidelines Implementing Executive Order No. 430 (1990) to apply to research, production, manufacturing work and institutions engaged in genetic engineering in the Philippines, as well as the importation or introduction and/or breeding of plant pests and potentially harmful microorganisms. Any work covered by these Guidelines must be reviewed and approved by the National Biosafety Committee of the Philippines (NBCP) created under Executive Order No. 430 (1990) before its implementation.

Part II explores the opportunities for promoting and implementing CBNRM provided by the CBD, the Cartagena Protocol, and the various administrative issuances discussed above.

III. RESPONDING TO GLOBAL CHANGE: THE ROLE OF CBNRM

The challenges of global economic integration, climate change, and biotechnology are intricately linked to each other, especially with respect to the economic and policy pressure that they exert on natural resources, particularly forests. For example, greater ease in trading forest products across borders due to the lowering of trade barriers, the potential for carbon absorption credits, and the potential for biotechnology to shorten the harvest cycle, can all serve to spur foreign investment in the development of industrial

tree plantations in the country. The same economic logic would apply with respect to mineral development. Without a clear policy focus, coupled with effective and consistent implementation, in favor of CBNRM, these global trends will most likely result in further marginalization and disempowerment of poor rural upland communities.

For the authors, Community-Based Natural Resources Management (CBNRM) is the essential requisite towards ensuring that natural resource management in the Philippines is rendered economically equitable and ecologically sustainable. CBNRM is an approach that emphasizes the primary role of local communities in determining their own fate and allows them to become effective and empowered economic and political actors in their own right. In many documented instances, local community natural resource projects implemented in accordance with CBNRM precepts have proven to be more ecologically sustainable and economically equitable than natural resource projects implemented pursuant to State resource grants and privileges.[11]

An effective CBNRM policy recognizes that local community control and tenure to the resource base is the key towards ensuring economic equity and environmental sustainability. Empirical evidence in many countries have shown that communities are often skeptical of government programs that provide them with only limited tenure over local natural resources.[12] This allows community members to adopt and implement community norms governing individual and communal access and use of the local natural resources upon which the community depends for its livelihood in ways that preserve and maintain the existence of such resources rather than focus on their extraction for external markets. Resource access rights that are derived from community norms will have normally evolved as a result of the long-term relationships established between the community and the natural resources upon which they survive. As such, compared to externally-imposed and State-granted resource rights (i.e. Torrens land titles, logging permits, mineral concessions or agreements), community-based resource rights tend to be more legitimate in the eyes of community members and hence, their determination, dispute resolution, and enforcement are communal matters rather than of external State agencies.[13]

The following principles of CBNRM should be brought into the policy and regulatory framework for dealing with such global trends as global economic integration, climate change, and modern biotechnology in the Philippines:

- Transparency and information access. – Regulatory and policy transparency and access to information are CBNRM principles that are also reflected in the emerging international regimes governing trade, climate change, and modern biotechnology.

- Community consent and organization. – The principle of informed community consent inherent in CBNRM should be integrated into the Philippine policy responses to global change. By facilitating policy recognition of traditional means of community decision-making with respect to natural resource-related transactions, CBNRM enhances the predictability of community-outsider interactions and encourages them to seek mutually beneficial ecological and economic solutions. This

presupposes that the community is organized and is able to undertake its own independent decision-making process.

- State power devolution. – By prioritizing the role of local communities as natural resource managers and actors capable of making economic decisions vis-à-vis such natural resources in their own right, CBNRM ties in with the thrust of current global economic models encouraging the devolution of State power over economic decision-making to the interactions of private economic actors driven by market forces. The role of the State becomes limited to providing the regulatory framework that will facilitate as well as provide the parameters within which such interactions can take place.

- Economic equity and environmental sustainability. – These are the objectives of an effective climate response strategy and those who want to maximize the social and economic benefits of modern biotechnology.. These objectives that an effective CBNRM policy framework can help achieve are also putatively the objectives of those who advocate increased global economic integration. Implementing an effective CBNRM policy can, therefore, be seen as an opportunity through which local communities can decide for themselves on the process and pace under they are to integrate themselves into the global market economy on their own terms.

A. CBNRM as a Response to Global Economic Integration

The social and economic conditions that can be created though a genuine and effective implementation of CBNRM as a policy can assist sectors that may be adversely affected by the costs and threats of global economic integration. CBNRM can provide them with socio-economic foundations that may provide them with the ability to absorb and adapt to such costs, and to maximize the potential long-term economic benefits that may be obtained, if any, as a result of such integration. In sum, CBNRM can be adopted by the government as a legitimate safety net from the worst impacts of global economic integration.

Although the framework of the WTO system for global trade generally tend to militate against an overly trade-restrictive economic policy approach, there continues to exist some measure of recognition of the need and right of countries to adopt and implement economic policies consistent with their environmental needs. This can provide a certain limited amount of leeway for the Philippines to undertake a CBNRM policy as the basis for ensuring that the pressures of globalization are channelled towards those economic sectors that can best adapt, and away from the social and economic sectors in the country – such as rural local communities and indigenous communities directly dependent on natural resources for their livelihood – that would be most disadvantaged and adversely affected.

Various provisions of GATT 1994 allow limited derogations from compliance with WTO trade obligations. In particular, GATT 1994's Article XX(b) and (g) allow countries to

adopt or enforce measures that would otherwise be inconsistent with the basic trade obligations but which nevertheless are, inter alia, "necessary to protect human, animal or plant life or health" or "relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption." Such measures must not be applied "in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade." This general exception provision in the GATT 1994 theoretically can, to the extent that the parameters embedded therein are observed, be used to justify nominally trade-restrictive or –discriminatory environmental measures. A CBNRM policy that reserves solely to Filipino citizens and communities certain resource use and control rights deemed necessary by the State to be recognized in such communities or considered as related to biodiversity conservation and protection may be justified under GATT Article XX to a limited extent.

Other annexed agreements of the WTO Agreement also provide for this limited recognition of the right of countries to impose trade-restrictive or trade-discriminatory measures for non-trade considerations, including with respect to the imposition of sanitary and phytosanitary measures (i.e. public and environmental health and safety), measures relating to the provision of public and private CBNRM-related services (i.e. community organizing, environmental and natural resources protection and management, product marketing and management), or measures relating to restrictions on the entry of investments in CBNRM priority areas (i.e. investments regulations in mining and forestry).

The 1987 Philippine Constitution lays down the basic trade and economic policy framework that should be followed by the State. Constitutional provisions, such as those contained in Articles II, XII, XIII, and XIV, clearly indicate a "Filipino First" trade and economic policy in the implementation of the country's trade treaty obligations. The Philippine Supreme Court said as much in the Manila Prince Hotel and WTO ratification cases, indicating that the State should seek to provide adequate safeguards that will assist disadvantaged sectors and better enable Filipinos to effectively compete in a globalized and economically interdependent world. To this extent, and if implemented with such safeguards, the WTO Agreements are not inconsistent with the Constitution.

The policy recognition of the need to provide for safeguards for sectors that might be adversely affected in the face of economic globalization can also be found in economic legislation such as Rep. Act No. 7844, the Export Development Act of 1994; Rep. Act No. 7900, the High-Value Crops Development Act of 1995; and Rep. Act No. 8800, the Safeguard Measures Act of 2000. The expressed legislative intent in these laws can best be implemented through the adoption and implementation of a broad-based, cross-sectoral CBNRM policy.

CBNRM should hence be extended to other primary natural resource sectors. Republic Act No. 8425, the Social Reform and Poverty Alleviation Act of 1998, enacted during the last days of the Ramos administration and implemented mainly in the breach during the

Estrada administration, provides the statutory basis for broadening the scope of CBNRM to non-forest resource sectors. Rep. Act No. 8425 stipulates that the Social Reform Agenda must push reforms "which address the existing inequities in the ownership, distribution, management and control over natural resources and man-made resources from which they earn a living or increase the fruits of their labor", "ensure the effective and sustainable utilization of the natural and ecological resource base, thus assuring greater social acceptability and increased participation of the basic sectors in environmental and natural resources conservation, management and development", and "enable the basic sectors to effectively participate in decision-making and management processes that affect their rights, interests and welfare." The IPRA likewise, with respect to indigenous communities, can provide a statutory basis for the initial application of CBNRM policies with respect to ancestral domains and ancestral lands. The implementation of the IPRA, especially Sections 7(b), 10, 11, 16, 17, 32, 33, 34, 35, 36, 57 and 59 thereof, can provide for the beginnings of an effective approach towards the implementation of CBNRM vis-à-vis ancestral lands and domains of indigenous peoples.

As stated earlier, current CBNRM approaches – especially in the forestry sector – undertaken by the Government have tended to focus on facilitating and maximizing resource extraction over community resource control and tenure by granting temporary and limited tenurial rights to natural resources for purposes of resource extraction. This focus has prioritized private resource rights rather than community-based resource rights. Such approaches would generally be considered as fully in line with the country's international trade obligations and the overall economic development perspective that underlies such obligations. However, they do not utilize the openings that may be available in such trade obligations for the adoption and implementation of CBNRM as a social and economic safeguard policy from the economic dislocations that would most likely occur due to a focus on resource extraction brought about by their integration, as resource producers, into the global and domestic economy. Neither do current CBNRM approaches effectively comply with existing statutory and constitutional mandates that seek to address the concerns of the country's economically and socially marginalized sectors.

Current CBNRM policy should, therefore, be changed to reflect such Constitutional and statutory mandates, and avail of the limited extent to which WTO obligations allow for the imposition of trade-restrictive or –discriminatory measures for specific national policy objectives. Such changes should include:

- Statutory recognition of the right of local communities, including indigenous communities, undertaking natural resource development projects to undertake selective purchasing and marketing support activities for their products and technologies.

- Restriction of access rights to specific natural resources – including minerals, forests, flora and fauna – including associated rights for the conduct of resource management and development activities and services, in which CBNRM is to be implemented to Filipinos, especially to local and indigenous communities that are primarily

dependent on such resources for their local livelihood. CBNRM policy should include trade policy wherein the Government clearly specifies in its international trade commitments under the WTO – i.e. in terms of market access limitations, exemptions to various trade disciplines – such reservation of rights solely to Filipinos in those natural resource sectors in which CBNRM is to be implemented.

- Imposition of trade or market access restrictions on the export or domestic production of primary natural resource products that are sourced from non-CBNRM projects. This removes the economic trade incentive for the establishment of large scale mining projects and industrial tree plantations, and will ensure that CBNRM-sourced natural resource products are given preferential domestic and international trade treatment by the Philippines, thereby enhancing biological diversity, exhaustible natural resource conservation, and the economic upliftment of local upland resource-dependent communities that run CBNRM projects.

- Removal of preferential regulatory treatment for non-CBNRM-implemented natural resource-related projects – including the abolition or gradual phase-out of the IFMA program, the imposition of more stringent environmental and social standards and the extension of community consent and oversight rights with respect to the establishment and implementation of IFMA and large-scale mining projects, the repeal of fiscal and tax incentives provided under existing Philippine investment and tax laws and regulations for IFMA and large-scale mining projects.

- Expansion of CBNRM principles, as both an administrative policy and a statutory mandate, to other natural resource sectors – i.e. mining, water, energy, wildlife, and air.

- Provision of adequate and appropriate State financial and infrastructure assistance to CBNRM communities.

- Institutionalization of local community rights to prior informed consent, effective participation, and representation in decision-making and governance at all levels, benefit sharing, and resource access and management, in CBNRM policy for all natural resource sectors. This should include the devolution of CBNRM administration and implementation by the DENR to its provincial offices, making it easier for local communities to avail of DENR CBNRM-related facilities and services. This should include, as well, State recognition of existing community norms governing resource access and management being implemented by local resource-dependent communities.

- Institutional and effective implementation of the statutory recognition of ancestral domain rights of indigenous communities to their land and natural resources, and the State provision of appropriate administrative and statutory tenurial rights to land and natural resources to other local communities primarily dependent on access to natural resources for their local livelihood.

B. CBNRM and the Challenge of Climate Change

As the Philippines responds to climate change, CBNRM is relevant in two respects: (1) How the country approaches the role of forests in climate change mitigation; and, (2) its role in adaptation, particularly in the area of coastal and marine resources.

Forests as Carbon Sinks: CBNRM and the Clean Development Mechanism

There is no question that attention must be placed on the relationship between climate change and forests. Indeed, both the UNFCCC and the Kyoto Protocol acknowledge the role and importance of forests as "sinks and reservoirs" carbon. Under Article 4 of the Convention, parties are mandated to protect and preserve carbon sinks such as forests while Article 2 of the Kyoto Protocol includes sustainable forest management as an important tool that could be used to mitigate climate change. In developing countries, like the Philippines, the challenge is how to do this right by making sure that climate change related activities in forestry result not in the distortions discussed earlier (e.g. an emphasis in industrial forestry) but in a manner which actually promotes sustainable management of forests while meeting the goal of helping avoid climate change. In particular, the way the Philippines (consistent with what is agreed upon internationally) will make use of the Clean Development Mechanism (CDM) is crucial to avoid such distortions.

The Clean Development Mechanism aims to achieve climate change mitigation through a system by which industrialized countries receive emission reduction allowances in exchange for financing emission abatement projects in the South. The CDM allows Northern countries to invest in carbon sink forest plantations (as well as in other climate change reduction projects such as forest conservation, energy efficiency, and renewable energy) in the South and have the project's carbon absorption be "credited" towards the investor country's compliance with its Kyoto Protocol emissions reductions commitments. Reforestation and afforestation activities in developing countries are allowed under the CDM and there is an expectation that large amounts of new funding for forestry will become available. The question becomes whether or not these new investments will aggravate the existing inequities and unsustainability, resulting from a bias for commercial extraction and industrial forestry, in the forest sector. The challenge to policy makers and implementors will be to ensure that this does not happen and that the CDM becomes an instrument for sustainable and equitable forest management.

New money in forestry will not automatically make a positive difference in forest management in the Philippines. Unless the necessary policy reforms are truly implemented, such new investments not only will go down the drain but also will in fact aggravate existing social tensions and environmental pressures. This is particularly true if CDM leads only to a new lease in life to commercial logging and to the unquestioned promotion of industrial forestry. Only if CDM projects can be designed to support the policy reforms that have already been adopted, in particular CBNRM, will it have potentially a positive impact on forest management in the Philippines.

Specifically, the authors believe that strict social and environmental criteria must be adopted for CDM and other climate change related forestry activities in the Philippines.[14]

- First, these projects must be developed consistent with the principles of transparency and public participation. Information on such projects – their goals, funding and proposed operations – must be disclosed before their implementation. Affected communities must be given a role in both designing and implementing them. Indeed, the free and prior informed consent of local and indigenous communities must be a precondition before moving forward. Without stakeholder participation, CDM and similar projects are bound to fail and will not meet its objectives.

- Second, CDM and other climate change related forestry activities must undergo both environmental and social impact assessments. The impact on biological diversity and on the conservation and the enhancement of natural forests must be closely looked into. Above all, deforestation is avoided and afforestation and reforestation are undertaken only where they contribute to environmental and social values. Ecological and social benefits from CDM projects must be maximized and the costs minimized.[15] Specifically, their consequences on forest populations, on issues such as forest tenurial security and on the control and management of the project areas and resources must be considered. The impact on indigenous peoples and other local communities are particularly a high priority. The potential negative impacts must be assessed and mechanisms must be put into place to ensure that these peoples and communities share extensively in the benefits of such projects.[16]

- Third, climate related investments in forestry must be designed to be supportive of the forest policy reforms already adopted. Specifically, synergies with CBNRM policies and programs should be a priority in developing and implementing these projects. For example, the new money must be used to support existing and proposed CBNRM programs and projects and not commercial and industrial forestry. Indeed, if designed and managed properly, CDM projects could be the catalyst that could make possible a new relationship between communities and the private sector. CDM, for example, could attract new investors into forestry, including energy companies whose interest will not be extraction of timber but conservation of forests as carbon sinks. In this way, CDM and other climate related forestry activities could be instrumental to meeting the CBNRM goal of wealth creation for communities.

In conclusion, the authors acknowledge that there could be positive environmental, economic and social consequences of CDM and other climate related forestry activities but only if the appropriate environmental and social criteria, as described above, are strictly followed.

Adaptation Strategies for Coastal and Marine Resources

The Framework Convention on Climate Change is not only about mitigating the causes of climate change. A cornerstone of the Convention is its objective to help human

societies adapt to climate change. Recent decisions by the Conference of the Parties of the UNFCCC establishes mechanisms through which developing country governments can have access to financial and technical resources for adaptation. Among others, for example, an adaptation fund is established.[17] In these decisions, particular attention is given to how the most vulnerable countries can be assisted as they deal with its impacts. These include coastal countries like the Philippines whose coastal and marine resources are threatened.

Adaptation is the process through which countries can reduce the adverse effects of global climate change on the health and well being of its people. It can be spontaneous or planned, i.e., it can be carried out in response to or in anticipation of change in conditions. Adaptation strategies provide society guidance on the adjustments necessary to enhance the viability of social and economic activities and to reduce their vulnerability to environmental factors such as climate change. Adaptation programs contain measures or actions that can reduce the vulnerability of natural or human systems to climatic change and/or variability.

As the Philippines develop its adaptation programs to climate change, it should bear in mind its development goals and make sure that such programs address their development needs and priorities. Among others, they would need to mainstream adaptation planning, create an enabling policy and legal framework for adaptation, strenghten institutions, support collaborative programs and traditional systems and mobilize public action.[18] In the area of coastal and marine resources, CBNRM may be a relevant strategy if the country is to begin to effectively adapt to the challenges of climate change. At its core, what adaptation requires is good natural resources governance and management. There is not much that governments can do about the physical and biological impacts themselves (sea level rise, coral reef bleaching, extreme weather events). What they could do is to take into account these impacts in making decisions about coastal and marine resources. With climate change aggravating the stress that coastal and marine ecosystems and associated fisheries resources are already facing, the imperatives of sustainable fisheries policy, effective marine biodiversity conservation programs and sustainable coastal development have become more urgent.

CBNRM in coastal and marine resources, by itself, would not be an adequate adaptation response to climate change. But it would need to be an essential element of an adaptation strategy. Co-management in fisheries, community based approaches in managing marine protected areas, including in reef management, and community participation in integrated coastal management) processes are just some examples of such a role.

C. CBNRM and Modern Biotechnology

For national or international biodiversity legislation to be effective, it has been pointed out that there must be: (1) recognition of resource access rights and security for local communities; (2) local communities must be enabled to effectively participate in resource management decisions; and (3) there must be equitable sharing of the benefits arising from the use of the natural resources with the source local communities.[19]

Given the economic potential and the environmental and health risks arising from the application of biotechnology, the visibility of genetic resources and biological diversity protection and conservation in national and international policy-making, as well as in popular public consciousness, has been increasing. Innovations that are based on genetic diversity rely on having physical access to genetic resources. However, although States have traditionally imposed controls on ownership and control of natural biological resources such as flora and fauna directly through specific legislation or, indirectly, through general property legislation, it is only recently that States have started moving towards regulating access to the genetic material that these flora and fauna may contain. The impetus among States towards closing the doors on an open access regime with respect to genetic resources stems from the growing perception, especially among developing countries of origin, that such regime has allowed users to benefit from such access without equitably sharing the benefits with the country of origin or the local communities from whom the genetic material was ultimately obtained. Recognition also exists among States that regulating access to genetic resources can help promote biodiversity conservation and its sustainable use.[20]

The EO 247 requirement that those seeking access to genetic resources obtain the prior informed consent from local or indigenous communities in the area in question is strongly supported by many stakeholders in the Philippines, and is, in practical political terms, non-negotiable. Through the PIC process, the capacities and efforts of indigenous peoples and local communities to protect, conserve, and manage the natural resources in their areas are acknowledged and supported. It also provides them with leverage to negotiate the terms and conditions for the use of the resource and capture a share of any subsequent benefits. Benefits that might be negotiated by local communities under the EO 247 framework include:

- X Up-front payments to local communities for samples collected in their territories and/or cash "milestone" payments pegged to stages in the development of a product where its value increases;
- X Transfers of locally-useable technology and local capacity-building, so that the source community may bring added value to its genetic resources;
- X Earmarking of funds for conservation of biodiversity and genetic resources in a community's territory;
- X Co-ownership of patents and other intellectual property rights where indigenous knowledge associated with collected genetic resources contributes to the discovery of a useful compound and/or development of a commercial product; and
- X Support for infrastructure developments–such as schools, water supplies, or roads–desired by a community in whose territory samples are collected.

With respect to intellectual property rights, the key issue lies in the degree of control over the intellectual rights and genetic resource source of modern biotechnology. Under the TRIPS and the Western-model system of intellectual property rights protection that it promotes, exclusive and monopolistic control over the development, use, and benefits from specific intellectual property rights is vested in the legal and registered rights holder. Persons other than the legal rights holder may, at the option of the rights holder,

acquire rights over the use thereof subject to the consent of the rights holder. This clearly militates, in most cases, against the effective application of CBNRM principles and approaches relating to biotechnology products within the context of the standard Western-model system for intellectual property rights protection. To a certain extent, however, there exists some policy space for the implementation of CBNRM policy with respect to the introduction of modern biotechnology.

Article 8(1) of the TRIPS recognizes the rights of countries to adopt measures "necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socio-economic and technological development." However, such measures must not violate the provisions of the TRIPS Agreement, including its national treatment and MFN obligation provisions. TRIPS Article 27(2) allows countries to "exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect *ordre public* or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law." Furthermore, TRIPS Article 27(3) allows countries to exclude plants, animals and essentially biological processes from being patented, and requires countries to "provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof."

Section 22.4 of Republic Act No. 8293, the Intellectual Property Code of the Philippines reiterates TRIPS Article 27(3)(b) in excluding plant varieties, animal breeds, or essentially biological processes for the production of plants or animals, from patent protection. Microorganisms and non-biological and microbiological processes, however, may be patented. The same provision provides that Congress is not precluded from considering "the enactment of a law providing sui generis protection of plant varieties and animal breeds and a system of community intellectual rights protection." Domestic law thus allows for a more wide-ranging *sui generis* system, covering both plant varieties and animal breeds, as opposed to the TRIPS' focus on *sui generis* protection solely for plant varieties.

The IPRA takes the creation of a system for community intellectual rights protection one step further than the Intellectual Property Code. It defines "community intellectual rights" as referring to the right of indigenous communities to "practice and revitalize their own cultural traditions and customs," pursuant to which the State is required to "preserve, protect and develop the past, present and future manifestations of their cultures as well as the right to the restitution of cultural, intellectual, religious, and spiritual property taken without their free and prior informed consent or in violation of their laws, traditions and customs." It also recognizes indigenous ownership, control and protection of their cultural and intellectual rights, and clearly enunciates the right of indigenous communities to "special measures to control, develop and protect their sciences, technologies and cultural manifestations, including human and other genetic resources, seeds, including derivatives of these resources, traditional medicines and health practices, vital medicinal plants, animals and minerals, indigenous knowledge systems and

practices, knowledge of the properties of fauna and flora, oral traditions, literature, designs, and visual and performing arts."

A system of community intellectual rights, incorporating a *sui generis* system of intellectual property protection over genetic resources, can link community intellectual rights and knowledge to genetic resource access and control. The IPRA's Section 35 exemplifies this linkage, and hinges community control over both the genetic resource and the intellectual rights and knowledge obtained on the ability of the community to grant or deny their "free and prior informed consent" to access to biological and genetic resources and to the indigenous knowledge.

By extension, the creation of a CBNRM-type *sui generis* system for the protection of intellectual property over plant varieties and other living things can be linked to the creation of a community intellectual property rights system especially with respect to biotechnology products derived from genetic resources obtained from natural habitats. Such a *sui generis* system can help ensure that the adverse impacts of forestry and other natural resource projects that utilize biotechnology on local communities and environmental sustainability are mitigated or avoided. Since local communities are oftentimes the best judges of what kind of activities would be most sustainable and viable under existing local resource conditions, recognizing the ability of local communities to control the introduction and use of biotechnology in their areas places a premium on local knowledge and judgment. The possible development of such non-patent-based *sui generis* systems for biotechnology products obtained from natural habitats is recognized in existing Western-style intellectual property protection regimes – ranging from the TRIPS to current Philippine national legislation.

A CBNRM-type *sui generis* system for plant and animal protection should include:

- Statutory and administrative recognition and protection of the rights of access and control of source communities to the genetic resource from which the biotechnology product was derived. This should include provisions that will provide source communities with the rights to prior informed consent, effective participation in decision-making at all levels, and effective oversight over biotechnology and bioprospecting activities that relate to: (a) the field testing, introduction, or marketing of biotechnology products in their locality; or (b) the sampling, testing, development, and marketing of specific genetic resources obtained from their locality. State regulations governing biotechnology and bioprospecting activities should take community consent and community intellectual property rights into consideration as key factors in determining the economic, social and environmental acceptability of biotechnology and its products;

- Linkage to a community intellectual property rights regime following the provisions of the IPRA with respect to the breadth and extent of such rights as are applicable to indigenous communities. In this regard, the statutory enactment and administrative implementation of a community intellectual property rights regime based in part on

the IPRA and independent from the current Intellectual Property Code must be made a State priority;

- Benefit-sharing from the uses to which the biotechnology product is put. Such benefit sharing must be done pursuant to a community-controlled and approved system for the receipt of economic benefits arising from the use and development of the community's genetic resources and community knowledge for biotechnology development purposes. For example, Section 4(i) of the Traditional and Alternative Medicine Act of 1997, Republic Act No. 8423, clearly stresses that community intellectual property rights to their traditional medicines and knowledge carries with it the right to receive compensation in the event that such traditional medicines or knowledge are accessed or studied or obtained by persons not members of the local source community;

- Conduct of prior assessments for the environmental, social and economic implications of the introduction and use of biotechnology products and processes on the source and user communities, including indigenous and local communities, as well as on the genetic resource base on which such products and processes were obtained or based, as the basis for any community decision governing the source genetic resource. Article 26(1) of the Biosafety Protocol, though yet unratified by the Philippines, mandates such consideration and assessment of socio-economic impacts.

III. CONCLUSION: RENEWING THE COMMITMENT TO CBNRM

The global trends discussed in this paper should be viewed not only as challenges to CBNRM but also rather also as the very factors that should push the State forward in crafting and implementing an effective CBNRM policy. Global economic integration, climate change, and modern biotechnology can provide the very justifications for embarking on CBNRM as the primary natural resource management approach in the Philippines.

CBNRM law and policy, however, is useless unless they are implemented. The reality behind the myth of CBNRM law and policy is that implementation is not the sole domain of State actors. Rather, implementation rests also on the ability of communities to effectively assert their rights and interests against competing rights and interests over the same set of natural resources. Effective assertion is founded on the existence of a strong, organized, and empowered community. Global change – economic, environmental and technological – while certainly presenting serious threats to such empowerment provides new opportunities for such assertion

In her inaugural speech on 20 January 2001, President Macapagal-Arroyo stated that the perils in the drive towards economic development in this era of globalization and competitiveness must be addressed and balanced with by "social bias" through the provision of "safety nets for sectors affected by globalization, and safeguards for our environment." This statement was reiterated in her address to the Makati Business Club on 2 February 2001. Her speech before the Foundation for Economic Freedom on 15

February 2001 reiterated her recognition that market-led economic reforms "do not solve every problem that communities confront" and that, therefore, State policies "should encourage broader asset ownership, among other measures."

The consistent and effective implementation of CBNRM, as discussed in this paper, can very well be the policy measure providing the social safety nets and environmental safeguards that the President has stated are necessary to address the perils of globalization. It can become the vehicle through which the State can undertake an integrated and complementary approach towards economic and natural resource policy-making in the context of external pressures arising from global economic integration, climate change, and the increasing use of biotechnology applications in natural resources management.

ENDNOTES

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[1] See Antonio G. M. La Vina, *Community Based Natural Resource Management – Seeing through the Myth, Understanding the Reality, Building the Future: Reflections on the Philippine Experience from a Policy and Operational Perspective* (2001), also prepared for the Ford Foundation.

[2] These global issues are not exclusive and exhaustive. For example, global developments in information and communications technology as well as global trends in governance are just as important and significant. However, for purpose of this paper, we chose the three issues because of the opportunity they provide in dealing with three major types of global trends: economic, environmental and technological change.

[3] See *List of Applications for Financial and Technical Assistance Agreements (FTAA),* Mines and GeoSciences Bureau (MGB), Department of Environment and Natural Resources (1997).

[4] See e.g. Friends of the Earth International, Tree Trouble: A Compilation of Testimonies on the Negative Impact of Large-scale Monoculture Tree Plantations (2000). This publication provides case studies of the adverse social, environmental, cultural, economic, and community life impacts of tree plantations in Costa Rica, Ecuador, Australia, Paraguay, Indonesia, Chile, Cameroon, Colombia, and the Czech Republic.

[5] See Intergovernmental Panel on Climate Change, *Third Assessment Report* (2001).

[6] See *National communication of the Philippines to the Framework Convention on Climate Change* (1999).

[7] Glowka, supra note 6 at 4, citing CBD Article 15(1), (2), (4), and (5).

[8] Presidential Decree No. 1152, Philippine Environment Code; Republic Act No. 7586, National Integrated Protected Areas System Act of 1992; Republic Act No. 8371, The Indigenous Peoples Rights Act of 1997;

Republic Act No. 8423, Traditional and Alternative Medicine Act (TAMA) of 1997; Republic Act No. 8293, Intellectual Property Code of the Philippines; Republic Act No. 8492, National Museum Act of 1998; Republic Act No. 7308, The Seed Industry Development Act of 1992.

[9] DENR Administrative Order No. 20 (1996) is the implementing regulations for Exec. Ord. No. 247 (1995).

[10] DENR Administrative Order No. 20 (1996) is the implementing regulations for Exec. Ord. No. 247 (1995).

[11] For a discussion of the basic considerations on why community-based resource management has been identified as a management system that is equitable and ecologically sustainable, see OWEN J. LYNCH and KIRK TALBOTT, BALANCING ACTS: COMMUNITY-BASED FOREST MANAGEMENT AND NATIONAL LAW IN ASIA AND THE PACIFIC 23-29, 109-136 (1995).

[12] Id., at 115.

[13] Id., at 27-29.

[14] At the international level, similar criteria is also necessary to complement national policy. While we focus here on national criteria, the authors believe that such criteria will not be meaningful unless the rules at the international level support them. See Principles and Criteria for Land Use, Land Use Change and Forestry projects (September 2000), signed by Center for International Environmental Law, et al.

[15] For an exhaustive discussion of the relevant environmental norms, *see Carbon Sequestration, Biodiversity and Sustainable Livelihoods: The Role of an Ecosystem Approach in Balancing Climate Change, Biodiversity and Social Objectives*, IUCN (November 2000).

[16] See *Declaration of the First International Forum of Indigenous Peoples on Climate Change* (September 4-6, 2000), Lyon, France.

[17] See *The Marrakech Accords: Decisions by the Conference of the Parties in its Seventh Session*, Framework Convention on Climate Change, November 2001, www.unfccc.org

[18] John Viridian, Understanding the Synergies Between Climate Change and Desertification, UNDP and Government of Morocco (2001), p. 30-31.

[19] See Gregory F. Maggio, *Recognizing the Vital Role of Local Communities in International Instruments for Conserving Biodiversity*, 16 UCLA J. ENV'TAL L. & POL'Y. 179 (1998).

[20] See LYLE GLOWKA, A GUIDE TO LEGAL FRAMEWORKS TO DETERMINE ACCESS TO GENETIC RESOURCES 1 (1998).