

Localizing the Global: Rice as Metaphor of Biodiversity Discourse in the Philippines

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"Biodiversity is the multitude of real-world organisms, species and processes commingled with biologists' factual, emotional, political, aesthetic, spiritual, and ethical values of the natural world, all combined to shape public perceptions, actions, and feelings."

David Takacs, *The Idea of Biodiversity: Philosophies of Paradise*, 1996

The global biodiversity discourse epitomized by the 1982 Convention of Biological Diversity (CBD) texts and related documents have been characterized by the scientific attempts to make sense of this feature of nature we technically called "biological diversity." This paper contends that this global scientific discourse on biodiversity despite its practical and pragmatic ethos remain incomplete, better yet, enigmatic without incorporating the emerging notions of biological diversity as articulated by several grassroots voices notably those of feminist groups, indigenous peoples, and international association of Third World countries. Rather than literally subverting the global understanding of biodiversity, these local voices in a sense fertilize the dimensions of biodiversity by interfacing the immediate, contextual, and situated realities of their lives as women, indigenous, and poor. These local voices too

make poignant the above quoted declaration of Takacs regarding the parascientific facticity of biodiversity.

The main goal of my paper is to paint in broad strokes the landscape of these local voices with a view of understanding and appreciating their specific contributions towards achieving a glocal (i.e., a global yet locally-based) environmental agenda.

A note on the organization of the paper. The paper has three major sections. The first section discusses the global scientific discourse of biodiversity. It argues that this overtly scientific way of talking and speaking about biodiversity begs more questions that it intends to answer. As I offer to show, the definition and application problem of the approach reflect these limitations. The second section focuses on the burgeoning discourses of biodiversity emanating from the "local epistemic contexts" of feminism,

indigenous peoples, and Third World countries.¹ It is within these frames that I segue to present a genre of such discourse being articulated in the Philippines using a single crop (rice) to stand for (represent) biodiversity. The challenges posed by these grassroots voices taken together are the foci of the last and concluding section. Here I distanced myself from the traditional notion that views these peripheral discourses as esoteric, parochial and more often than not, self-serving. Instead, I argue that the situatedness of their local experiences and epistemologies enriches rather than undermines the global biodiversity discourse. This complementation, I argue, provides a distinctively dialogical avenue² that expands the utility of the biodiversity concept as an analytical prism in making sense of the increasing complexity of the environmental challenges we face today.

THE GLOBAL BIODIVERSITY DISCOURSE: PROMISES AND PROBLEMS

Before 1986 the concept/term "biological diversity" or "biodiversity" was non-existent. This word was invented by a group of American conservation biologists in a conference "The National Forum on BioDiversity" held in Washington D.C. in 1986. Walter Rosen (who probably coined the term) organized the gathering with the support of E. O. Wilson. The activity was under the auspices of the National Academy of Sciences and the Smithsonian Institute. The group felt that a new catchword was needed to promote nature conservation and to make people aware of the lurking

dangers of species extinction. The neologism was apparently created to replace several other terms that had been used in promoting nature conservation such as ecosystem, endangered species, natural variety, habitat and even wilderness (Nieminen 2002, Sarkar 2001).

As a rare example of scientific activism, biodiversity then was clearly originally conceived to be a scientific tool aimed at achieving certain ends: to prevent worldwide loss of species diversity, to alert the world that species extinction was rapid and problematic and to catalyze and solicit public interest and action (Lane 1999). Biodiversity as an *organizing* concept was invented as a communicative tool in the broader political arena. It was conceived from the need to communicate and act in a concerted effort (Norton 2003).

While the history of the term is relatively short,³ it has already sparked important, distinctive and philosophical debates. Some of these are entangled in the very definition of 'biodiversity', an issue which becomes the hallmark of some of the present political, environmental, and social aporia. To date there has been no universally approved definition of biodiversity within the community of scholars with the exception, of course, of the original one proffered by the organizers of the 1986 Washington convention.⁴ Since then, biodiversity as a concept becomes so stretchable a term there seem to be no chances of taking it back to its original usage.

As if to lighten the vagueness of the term and the confusion it generates among its scientific users, two complementary

schemes have been proffered, the hub of which are the issues of (i) pinning down a precise definition (i.e., definitional problem) and (ii) operationalization of its indices (i.e., application problem).⁵ These schemes are complementary in the sense that the first serves as the take off point of the second. The second approach, on the other hand, does not abandon the optimism of the search for a categorical definition. Rather, it fleshes out the ethics and practicality of such a process.

The first scheme has been suggested in a paper presented during the 2000 London 3rd Policies for Sustainable Technological Innovation in the 21st Century (POSTI) Conference on Policy Agendas for Sustainable Development. The approach divides biodiversity into two parts when analyzing its use in environmental policy viz,

- (i) biodiversity as a *feature of nature* (i.e., the variety of species, phenomena, and processes that exist in nature)
- (ii) biodiversity as a *policy discourse* (i.e., a concept and a discourse that is used in arguing for the need of nature conservation and in legitimating different conservation policies).

As explicitly argued by Nieminen (2000:2):

Biodiversity as the essential feature of nature is foremost the realm of scientists, it is the realm of scientific measuring, categorization and theorizing. Biodiversity as a discourse, on the one hand, is the realm of policymaking, administration and communication.

Biodiversity along the first divide refers to the pure objective status of the variety of living organisms, biological systems, and biological processes found on Earth. This bias is aptly captured by the following definition of its staunchest supporter—Edward O. Wilson:

Biodiversity...is all hereditary-based variation at all levels of organization, from genes within a single local population, to the species composing all or part of a local community, and finally to the communities themselves that compose the living parts of the multifarious ecosystems of the world (Wilson 1997:1–3).

As a policy initiative, biodiversity is embedded within the “rhetorical resources for identifying the responsibilities, characterizing social actors and groups, praising and blaming, criticizing conventional knowledge or accepting it, legitimizing courses of action or political strategies and for promoting the factuality of otherwise contestable claims” (Nieminen 2000:3).

It must be noted though that whether conceived as an objective feature of nature or as an object of policy initiatives, biodiversity remains to be a ‘discursive (or linguistic) creation’ of scientists (originally the conservation biologists) and of policymakers. As the social history of biodiversity attests, scientists who invented the term did not merely describe what they see as biological diversity; but the very act of description constitutes the object so described. The following quote from the book *Making Nature, Shaping Culture*,

poignantly captures this strong constructivist position:

Nature exists only through its description, analysis, mapping, and manipulation... What we call as objective reality is constituted by both the actual physical configurations of elements in things and in human conceptual frameworks (theories, definitions, and 'facts')... It is our ordering of the information received by our senses that constitutes the picture of 'all that is' and that we refer to as nature (Busch et al. 1994:3–4).

The second scheme muses not so much on 'how' to define biodiversity. Rather, it inquires as to 'why' define the concept in the first place. It boasts of a more constructivist stance (as explained above) since it argues that words like biodiversity do not correspond to pre-existing objects, individuals and categories⁶ (cf. Hajer 1995). By act of (usually implicit) choice, the development of a vocabulary of terms to discuss observable phenomena 'constitutes' the objects and categories humans recognize and manipulate linguistically. Communicative '*usefulness*,' therefore, and not '*truth*' should determine our definitions—usefulness implies careful examination of our shared purposes toward which communication is directed, which ultimately leads us back to the subject of social values and commitments (Norton 2003).

Within the context of second scheme, we could neither find nor create any '*correct*' definition of biodiversity, as one might discover a gem under a rock. What

we could and must strive for, instead, is to look for a definition that is '*useful*' in deliberative dialog regarding how to protect and preserve biological diversity, however defined. Our categories including biodiversity must be developed from the need to '*communicate*' and to '*act*' together within the broader political ethos (Norton 2003).

Quite obviously, the second scheme interrogates the utility of precise definitions. It alerts us to the fact that a carefully worded definition is not a guarantee that a cooperative discourse would ensue or that concrete actions will be taken. On the contrary, definitions may alienate, either by *silencing* or *relegating to the background*, the local '*voices*' of those who may have equal and valid stakes on the very issues these definitions raise.

BIODIVERSITY: THE GRASSROOTS VOICES

From the conservation biologists to policymakers to the general public, the currency of the term biodiversity mutates in ways unimaginable. The concept has become a catchword that serves to promote the various political, economic and cultural agenda this time no longer of scientists and decision-makers, but of individuals, communities, institutions and nations (Escobar 1998). With its usurpation by these new sets of articulators came newer modes of discourse (hence a whole new array of meanings and usage). Biodiversity has become a masterframe used by the *epistemic communities*⁷ of various stakeholders. As a masterframe from where all sides draw meanings,

biodiversity loses its '*signature meaning*'.⁸ A fascinating consequence of this development is the blurring of the distinction between the scientific discourse (of the experts) and the popular discourse (of lay or non-expert) (Haile 1999, Nieminen 2002, Dwivedi 2001). As Eder (1996:183) laments,

Biodiversity becomes a collectively shared ideology undermining the hegemony of science and at the same time seriously weakening the position of traditional environmental organizations and movements as primary mouthpiece of the environment.

At this juncture I would like to showcase three of these epistemic communities—the ecofeminist group, indigenous ecology movement, and the Association of Southeast Asian Nations (ASEAN). Each offers a distinctive perspective using equally distinctive sets of categories and claims. It is not my purpose to present an exhaustive description on each of these epistemic communities, except inasmuch as they relate to the purpose of current discussion.

Ecofeminism

Ecofeminism is an environmentalist version of feminism. Although a heterogeneous front in itself, ecofeminists are united by a common bond celebrating the conceptual links between domination of nature and the domination of women (Moyer 2001). Buhr and Reiter (2002) outline three of these conceptual links between women and nature viz, (i)

historical connections (the effects of the Enlightenment and the death of nature; (ii) metaphorical connections (same value dualisms operate to subjugate women and nature); and (iii) epistemological connections (challenges reason and rationality, ways of knowing).

It is within the purview of the third mode of conceptual connection that ecofeminism launches its most radical claim in relation to biodiversity debates and women. The following research notes of Martine and Villarreal (1997) contextualize the link:

... a particularly interesting discussion arises concerning the conservation of biodiversity. It is generally agreed that the knowledge, skills and practices needed for the conservation and development of plant genetic resources is critical for the preservation of biodiversity, which is linked with sustainability (FAO 1996, Bunning and Hill 1996). Such knowledge, skills and practices tend to differ along gender lines. Some authors sustain that women's knowledge is at the core of sustainability: "As the bearers of knowledge and the practitioners of the science of survival women contribute to and have a major stake in protecting the biological basis of all our future lives and livelihoods (Rocheleau 1995:14).

While men have generally engaged in cash crop cultivation (usually monocrops) throughout the Third World, women are more likely to be in charge of subsistence crops, which they

cultivate in homegardens, a farming system that contains high levels of biodiversity. In Thailand, homegardens managed by women were found to contain 29 percent of non-domesticated species (Moreno-Black et al., cited in Bunning and Hill 1996). In the Andean region, women were found to plant diverse potato seeds according to their traditional knowledge in order to combine the desirable attributes of frost resistance, nutritional value, taste, quick cooking time and resistance to blight, while their husbands followed the mostly male extensionists' advice to plant only one species (Rea, cited in Bunning and Hill 1996).

Extending these lines of argument, ecofeminism declares that since women are custodians of a wealth of cultural information about diverse species of plants and animals, any attempts to undermine biodiversity are tantamount to downplaying the epistemological investments of women in biological diversity (see Shiva 1993). Concomitantly, any attempts to appropriate (say, through biotechnology) or alter that state of affairs (i.e., monoculture regime), are considered subversion of that special bond between women and biodiversity (Zweifel 2000, Erasga 1998).

Indigenous Peoples

Over thousands of years, Indigenous Peoples have developed a close and unique connection with the lands and environments in which they live. They

have established distinct systems of knowledge and taxonomies, innovations, and ecological practices relating to the management and exploitation of biological diversity on these lands and environments. Oldfield and Alcorn (1991: 4 cited from Warren 1992) write:

Much of the world's biological diversity is in the custody of farmers who follow age-old farming and land use practices. These ecologically complex agricultural systems associated with centers of crop genetic diversity include not only traditional cultivars or 'land-races' that constitute an essential part of our world crop genetic heritage, but also wild plant and animal species that serve humanity as biological resources.

For these reasons and more, Indigenous Peoples as a social movement equaled the tenacity and steadfastness of ecofeminism in upholding their rightful position in relation to biodiversity issues and concerns. They insist on the recognition of their unique yet equally valid knowledge claims regarding their cultural-natural resources and the practices surrounding the exploitation and management of such resources (see Chen 2001, Tauli-Corpuz 2001, see also Warren 1992, Davis 1998).

I think the concept of "indigenous ecology movements" (IEMs) is illustrative of this development. According to Myer (1998), indigenous ecology movement is not a single, well-defined entity, but rather a broad rubric used to group a variety of voices, notably Northern environment-

alism or Southern indigenous groups. But more than just a movement with alternative set of political and economic action plans vis-à-vis resource management and utilization, IEMs offer different ways of understanding biodiversity (i.e., through their epistemologies of nature) as rooted in traditional ecological interactions guided by ways of knowing based on intimate co-existence with nature.⁹ Warren (1999:3) stresses:

There are many aspects to indigenous peoples' claim and interests in the natural environment and biological diversity. Indigenous peoples seek recognition and protection of their distinct rights in knowledge of, and practices relating to the management, use and conservation of biological diversity. They also seek introduction of measures to prevent exploitation of their knowledge, and compensation of financial benefits from the use of their knowledge, innovations and practices.

Clearly, the biodiversity discourse of Indigenous Peoples serves a variety of interests. These multiple interests interrogate the positivist discourse of science that puts prime on objective, and most often the economic features of biological diversity. IEMs' position transcends this purely utilitarian stance in favor of the spiritual and characteristically cosmological nature of human/nature relationship—a relationship that blurs the distinction between people and their biophysical environment.

Third World

Quite similar in their agenda regarding the political economy of biodiversity, the member-states of the Association of Southeast Asian Nation (ASEAN)¹⁰ have finally launched a new wave of national/regional security discourse that assigns the environment as one of its strategic dimensions.¹¹ This discourse is inspired by the Association's "joint endeavors" on sustainable development broadly embedded within its "security and development" agenda. In her analysis of this agenda Hernandez notes (1995:38):

To be sustainable, development in its economic dimension must be sensitive to its excessive demands on both natural and human resources as well as its negative impact on the physical environment.

The emerging nature of biophysical environment as "resources" drastically ushered a new mode of thinking in terms of national and regional security. In this context, biodiversity i.e., biogenetic resources of plants, animals and microbes composing the environment, is no longer seen as a natural component of a physical border separating nations and their peoples. Environment as container of biodiversity is no longer perceived as a lifeless frontier demarcating nations and their cultures. Rather, environment is now considered an integral and strategic component of the ASEAN's national and regional security. This new thinking is

based on the emerging definition of political and economic security, which sees environmental protection and sustainable development as key organizing principles. Peria (1998:5) writes:

Given the growing scarcity of the world's resources and the insatiable demand for it, security should be redefined to include the matter of safeguarding the integrity of a nation-state's natural resources.

The scenario goes like this—given the enormous economic, scientific and strategic potentialities of biogenetic resources,¹² which are most often found in underdeveloped and developing regions of the world (where there are diverse cultural communities), national security is unthinkable without incorporating biological and genetic resources as key factors (cf. Dupont 1994).

Perhaps this new mode of conceptualizing the environment is a fallout of the now seemingly obvious nature of environmental challenges—transboundariness. The region as a whole has experienced a series of environmental catastrophes such as deforestation, pollution, migration and climate change.¹³ Moreover, regional conflicts may become the contexts of these environmental problems. Hence, solving environmental problems is tantamount to addressing the regional conflicts that go with them.

The voices of the ecofeminists, IEMs and the ASEAN represent the local understandings of biodiversity both as a feature of nature and as a social construct. Nonetheless, they serve as powerful inter-

pretations of how humans relate to nature and vice versa. These interpretations are reflected by their cosmo-visions and epistemologies of nature, politics and development.

There is yet another local discourse on biodiversity quite unique in the Philippines (and in rice-dependent countries for that matter), which operates on a different level of abstraction. In some respect it is similar to the previous ones discussed above in the sense that it capitalizes on utilitarian value (a means to an end), conceptual relatedness (invokes similarities) and their contextual sensitivity (situational). It is rather unusual because it challenges the concept of biodiversity on the scientific level. This local way of talking about biodiversity uses a unitary crop—rice—as the representation of biodiversity.

RICE AS METAPHOR OF BIODIVERSITY

The Philippine-based International Rice Research Institute¹⁴ (IRRI), the leading research center on rice, ushers the construction of such a discourse. As far as IRRI is concerned, rice is the single most important crop in the world for a number of reasons:¹⁵

- a. "Rice is cultivated in 113 countries including especially the Philippines;
- b. Rice is the staple food for over half of the world's population;
- c. Rice provides 27 percent of dietary energy supply and 20 percent of dietary protein intake in the Developing World;

- d. Rice cultivation is the principal activity and source of income for about 100 million households in Asia and Africa;
- e. Of the 840 million people suffering from chronic hunger, over 50 percent live in areas dependent on rice production for food, income and employment; and about 4/5 of the world's rice is produced by small-scale farmers and is consumed locally."

In this regard, IRRI's International Rice Genebank (IRG) houses more than 90,000 samples of cultivated rice and wild species (Corporate Report 1997–1998).

It is no surprise that these complex social, ecological and biophysical features of rice are used as the template upon which IRRI's discourse on biodiversity has been firmly founded. These shared metaphors of rice and biodiversity became the scientific basis of IRRI's almost magical transformation of rice to its present form.

IRRI's Notion of Biodiversity Via Rice

For IRRI, rice is inextricably associated with *life, survival, complexity* and *culture*—four essential features of biodiversity (Table 1). Rice feeds more than half of the world's population; it grows in many complex habitats, from sunny open lands to shady forests; and it is nurtured by multiple and diverse cultures for millennia.

In terms of varieties, the number of rice varieties is staggering. IRRI estimates that there are roughly around 140,000 varieties of rice existing today. These varieties are products of farmers on *farm management* for thousands of years and of *organized breeding* efforts of scientists.

Rice Breeding As a Biodiversity Discourse

How does this notion of biodiversity translate to rice research praxes? Consider the following statements from one of the highlight articles in IRRI's 1997–1998 Corporate Report.¹⁶ The title is "*Beyond Rice*" with a subtitle—"Wide Crosses Broaden the Gene Pool." It says:

Although extraordinarily diverse, the cultivated rice gene pool simply doesn't possess some of the building blocks needed to make better varieties. So scientists have been tapping into rice's rugged relatives for the traits they

Table 1. Shared Metaphors of Biodiversity and Rice

Biodiversity	Rice
Life	Rice is food for billions of poor people.
Survival	Rice thrives in virtually all known types of environment.
Complexity	Rice-based ecosystem is a refuge of hidden web of life.
Culture	Rice is nurtured by multitude of ways of life around the globe.

want—with impressive results (p. 18). Using sophisticated techniques to get around nature's roadblocks, scientists are stretching the gene pool—and their imaginations—to make crosses between cultivated rice and its wild relatives. The goal? To create rice plants that yield bountifully and stand up to harsh environment and pests (p. 17). We're moving genes from the jungles and swamps into the rice gene pool to increase its diversity. If left to nature, this rich reservoir would go untapped (p. 19).

These quotes suggest the clues as to how IRRI translates its notion of "rice as biodiversity" into practical endeavor—*breeding*. For one thing, IRRI's tens of thousands of experiments on breeding rice, utilizing both the traditional and more advanced breeding technologies, (the latter started in mid-1970s) are just a start. The breeding process (whether conventional or transgenic)—where undesirable traits are removed and desirable traits are accommodated in the genes—is a literal attempt to infuse diversity initially on the *seed level*. It then expands that diversity to biological diversity by constructing what is now known as the *rice-based ecosystem* with rice as the lead crop. Such an ecosystem is a refuge of hidden biodiversity.¹⁷

If we follow the argument that breeding is a discourse (and it is a scientific discourse), the environmental implications of the evolved genetic architecture of rice crop are quite interesting. At present we have a whole series of modern rice varieties that could withstand a plethora of agroecological stresses, which

in the past was unthinkable. We now have rice varieties that are short, with more bunched grain stalks, can withstand strong winds, have built-in pesticides, and harvestable in no more than three months. Rice virtually becomes the storehouse of *virtual biodiversity*.¹⁸

Since then, rice as a crop has assumed a very powerful cultural, economic, and political import that it becomes the object of development discourses culminating to that of Sustainable Development (SD)—a brand of development approach that put equal emphasis on healthy environment and economic well-being of the present and future generations (see Brundtland Report 1987).

THE WAY FORWARD: LOCAL INSIGHTS, GLOBAL ACTION

I have argued elsewhere in the paper that localized articulations of biodiversity from the grassroots level should not be seen as jeopardizing the global understanding of this concept. These articulations are as valid as their scientific counterpart since they are couched on their articulators' mundane, cultural and situated relationship with nature or what we call biodiversity.

I argue that these contextual features of local discourses of biodiversity *lead us back* to the *original intention* of the creators of biodiversity concept—to communicate a common concern (accelerated loss of biological diversity) and to promote a concerted action of achieving a genuine sustainable development.

How is this possible? It is worth repeating here what Norton (2003)

proposes in his paper. He reminds that what we need to develop are not precise definitions of biodiversity, but *categories* that are useful in facilitating deliberative dialog vis-à-vis the need to conserve and protect the biological diversity. The global discourse on biodiversity dominated by scientific interpretations cannot and will not be able to provide these communicative categories all by itself. Here is where the local voices can fill the gaps. Their small context-based claims may account for what science and the global biodiversity discourse have been missing all along.¹⁹

Allow me to concretize these motherhood statements using as example the “rice as biodiversity” discourse of IRRI.

Rice for rice-dependent peoples is not just a crop they harvest, cook and prepare three times or more on their tables everyday. Rice for them is culture, food and life rolled into one. Because of this, the International Rice Research Institute embarks on making rice a *container* and *context* of a “virtual biodiversity.”

In doing so, it *constructs* and *sustains* a rice discourse that is couched on the very essence of biodiversity: *life, survival, complexity* and *culture*. IRRI through its advanced technology and pool of expertise, believed in diversity being housed and built around a single crop. The results are new breeds of rice and rice-based ecosystems, practices and innovations based on these features of virtual biodiversity.

IRRI’s discourse may appear strange and parochial. Yet such discourse both *challenged* and *informed* the community of nations that biodiversity is neither

confined to untouched forests of the Amazon nor located only in the so-called megadiversity spots²⁰ around the world. Biodiversity exists inside each rice seed and beneath each rice plant on a paddy just a few meters away from a farmer’s house. This “virtual biodiversity” within each rice seed forcefully communicates that biodiversity takes many forms.

This argument is not intended to simplify the notion of biodiversity. The point is, local discourses can create novel ways to communicate the significance of the biodiversity concept by transforming it into levels of abstraction understood by many sectors of society. IRRI’s discourse, for example, is scientific in its orientation, yet its appeal extends beyond the scientific cliques to the circle of common farmers.

LOCALIZING THE GLOBAL AND BACK: THE ENVIRONMENTAL CONSEQUENCES

Although *local in its origin*, IRRI’s discourse on rice as an epitome of biodiversity reaches a new *global height*, viewed in terms of the worldwide recognition it has achieved (especially quite recently) and the global environmental perspective it has inspired. Two events illustrate this trend.

On 16 December 2002, the United Nations General Assembly (UNGA) declared the year 2004 the *International Year of Rice* (IYR). The declaration is a global recognition of the social and environmental significance of rice in meeting pressing global concerns such as poverty alleviation, food security, global peace and environmental protection.

Hence, IYR's theme: *"Rice is Life."* Both the declaration and the theme, however, are symptomatic of the emerging notion of rice no longer as a single crop, but rather as an epitome of biodiversity itself—in essence, an important *"environmental crop."* An environmental crop is a crop which plays a critical role in bringing about either ecological blessings or ecological catastrophes.

Elevating the status of rice to an important environmental crop is a contingent *global implication* of IRRI's *local discourse*. Take for example the IYR's Concept Paper (2003). This official document of IYR is suffused with allusions of rice in relation to three critical global issues mentioned above, namely poverty, food security, and global peace. At first glance these issues may appear as social issues. However, if we are to scrutinize the specific explications of these issues in the IYR document, we will not fail to notice that these issues revolved around a single theme: rice as an environmental crop.

Interestingly enough, poverty, population and food security are no more articulated as social issues than as environmental issues.²¹ Here we can juxtapose the environmental implications of "rice as biodiversity" discourse with three (3) distinctive environmental episodes in recent history—(i) Green Revolution, (ii) Sustainable Development, and (iii) Genetically Modified Rice—all of which are biodiversity-related challenges.

Green Revolution was aimed to circumvent what was then believed to be an impending world hunger in the face of a bloating population and massive

poverty (Conway 1998). The idea was to produce more grains accompanying intensive application of farm inputs such as fertilizer and pesticides. Initially, the result was close to ideal: there were bountiful harvests and many poor and densely populated countries were fed. The environmental effects however soon became apparent. Because of intensive monocropping regime, emergence of pests, loss of soil fertility, soil erosion, falling water tables and salinization and the disappearance of traditional rice varieties haunted the Green Revolution countries.²² The Philippines was not exempted.

Sustainable development is both a philosophy and an approach to development. As such, its basic guiding principles juxtapose economic growth with environmental concerns. That is, material affluence is considered along with its environmental consequences. In the Philippines, sustainable development is unthinkable without mentioning rice. True enough, food security and alleviation of poverty are two dimensions of sustainable development that are rice-dominated issues. Production of many varieties of rice (representing biodiversity) is a critical step toward achieving sustainable development.

The environmental issues posed by the modern science of biotechnology are poignantly biodiversity-related. The dilemma, which is the hub of biodiversity loss debate, is how to conserve the *"remaining species"* out there in the field. But genetic engineering (the transgenic technique) reverses the issue and challenges us to ponder the likely

implications of not only what has been lost to extinction, but of the introduction of “new” ones, whether plants, animals or microbes (Redclift 2001). In this regard, transgenic rice like *Bb* Rice and *Bt* Rice are two recent biotechnology issues.²³ They are very controversial since their most likely ecological effects are yet to be known (Conway 2003).

CONCLUSIONS

This paper endeavors to prove that local discourses of biodiversity should not be interpreted as threats to achieving a common global environmental agenda. Their locality engenders categories and approaches that expand the utility of the biodiversity concept. The challenge remains twofold: (i) to map out the contextual categories of their claims and (ii) to find ways to communicate these categories and approaches without reducing the social status of their constructors.

Taking stock of these local categories can lead us to a listing of social concepts, which can serve as “units of analysis” in environmental research and academic investigations. These concept taxonomies with their accompanying approaches can then serve as *starting points* in studying emergent as well as mainstay environmental challenges.

I think the toughest hurdle along this line of approach is the actual effort of staging dialogs among stakeholders, as this requires a sort of “decisive partnership” among participants.²⁴ In the jargon of “participatory research” scholarship, this brand of participatory research not

only enjoins representatives of the global and grassroots biodiversity discourse to treat each other as equal partners. More than that, decisive participation demands that ownership of the fruits of partnership (i.e., knowledge and tangible resources) must be acknowledged and respected.

There are two problems here: attitudinal and methodological. I think the problem is not the expertise of scientists but their attitude in dealing with non-expert, non-scientist participants. Methodological in the sense that scientists and experts may have to compromise their career-honored tactics in conducting research.

In a way, localizing the global challenges environmental sociologists to take a serious look at grassroots voices because they offer such necessary categories and experiences. It is intellectually dishonest to deny that the 1982 CBD has already proclaimed this need. This historic document is replete with principles that give due credit (and emphasis) to the wisdom and usefulness of indigenous knowledge, the role of women, and the plight of poor yet resource-abundant countries. The problem, however, is that there has been no attempt reconcile these discourses. A dialog between grassroots and global voices must be staged to make the biodiversity concept a working and viable environmental concept. This dialog must operate within the premise of mutual respect, appreciation, and credit-giving between and among participants and what they bring to the fora.

NOTES

¹Since in themselves these "local epistemic contexts" are broad and amorphous, I narrow the selection to eco-feminism, indigenous ecological movements (IEMs), and the ASEAN to represent feminism, indigenous people, and the community of Third World nations, respectively.

²This is the line of interpretation I would like to pursue, as I believe that they do not necessarily contradict each other, however defined. Instead, each provides a snapshot of the bigger picture, which may not be captured by any single discourse.

³According to Takacs (1996) the word "biodiversity" did not appear as a key word in Biological Abstracts, and "biological diversity" appeared once. In 1993, biodiversity appeared seventy-two (72) times and biological diversity nineteen (19) times. Now it would be hard to count how many times "biodiversity" is used everyday by scientists, policy-makers, and others.

⁴The conservation biologists may have crudely defined biodiversity as the number and variety of distinct organisms living on earth. The Convention on Biological Diversity in this light is just an *attempt* to standardize or a result of a *compromise* between divergent but quite similar claims (i.e., the scientific claims).

⁵In relation to this, Sarkar (2001:3) inquires: "The term biodiversity has remained remarkably vague and its measurement equally capricious. Is allelic diversity part of biodiversity? Or only

species? What about individual differences? Do we have to worry about community structures? Is the number of species appropriate measure? Do we have to take rarity and commonality into account? Or should we worry about differences between places?"

⁶This position is quite similar to that of Escobar (1999) who argues against the possibility of prediscourse reality.

⁷Haas (1990) defines *epistemic community* as a "professional group that believes in the same cause and effect relationships, test truth to accept them, and shares common values; its members share a common understanding of the problem and its solution." Naess (2001) improves the concept by both limiting and expanding the category. He limits it by referring to scientists only and expands it by invoking the transnational networks of these scientists. As a network, an epistemic community provides a "pool of expertise and authoritative knowledge which is necessary basis for collective action" (p.32). See also Bauhr's (2000) discussion on epistemic communities and international political coordination. However, as used in the present paper, an epistemic community is not limited to scientists and experts, but embraces knowledge claim-makers such as social movements, organizations, or advocacy groups.

⁸I define *signature meaning* here as the intended definition of biodiversity as conceived by those who coined the

⁸I define *signature meaning* here as the intended definition of biodiversity as conceived by those who coined the term, that is, by the group of American conservation biologists who introduced the term in the 1986 Washington conference. Its signature meaning then was related to the promotion of nature conservation and to make people aware of the dangers of species extinction (Nieminen 2002).

⁹Two excellent works can be mentioned: One is Escobar's (1999) documentation of the struggle of the *Proceso Comunidades Negras* or PCN (Process of Black Communities)—a network of more than 140 local black and indigenous communities in the Colombian Pacific region. His analytical frame is called cultural politics. The framework suggests that cultural practices are the measure of defense of both nature and culture epitomized by their very notion of biodiversity as "*territory plus culture*." Another is Martha Johnson's (1992) edited book entitled *Lore: Capturing Traditional Environmental Knowledge*—where she documented the convergence and divergence of western science and *traditional environmental knowledge* (TEK) in different cultural contexts including Canada. The documentation aims to provide evidence that TEK is not necessarily inferior to science. Rather, it may present an analytical and taxonomic approach operating at a different level of abstraction.

¹⁰Composed of the Philippines, Vietnam, Thailand, Indonesia, Malaysia, Brunei Darussalam, Singapore, Cambodia, Laos, and Myanmar.

¹¹Development is broadly defined but include the ecological, social, economic and political dimension.

¹²These potentialities are enormous in terms of its medical and cosmetics applications not to mention the economic benefits that go with them. The state of the global bioprospecting initiatives being commissioned by gargantuan pharmaceuticals of North America and Europe epitomized such usefulness of biogenetic materials from diverse species of microbes, plants, and animals.

¹³The 1997 haze from Indonesia's biggest forest fire is an example. The haze covered vast areas in Malaysia, Singapore and elsewhere in the region.

¹⁴For reasons of concreteness and focus, I zeroed in on the works of IRRI. Other institutions such as the College of Agriculture of the University of the Philippines-Los Baños, the Philippine Seed Board, and the Philippine Rice Research Institute (PhilRice) may well be included as they share similar scientific and social mission with that of IRRI vis-à-vis rice.

¹⁵These basic information are culled from the Fact Sheets published by the *International Year of Rice* (IYR) and are available online: <http://www.fao.org/rice2004/index-en.htm>

¹⁶IRRI's *Corporate Report* is published annually and is organized by themes. It contains the description and status of the Institute's currently running programs and milestones in terms of project achievements. Interestingly, the theme of the 1997–1998 Annual program Report was "*Biodiversity: Maintaining the Balance.*"

¹⁷Cromwell (1999) outlines more sophisticated, multi-level components of agrobiodiversity, which included (i) crop diversity, (ii) below-ground plant biodiversity, (iii) wild-plant biodiversity, (iv) microbial biodiversity, and (v) arthropod biodiversity.

¹⁸For lack of a better term, I call it "*virtual biodiversity*" because it *mimics* more the "*essential*" than the "*objective*" features of biodiversity.

¹⁹It may be argued that IRRI's biodiversity discourse can still be considered part and parcel of the scientific (i.e., the global) discourse on biodiversity. And rightly so. However, I counter that it may be so in its methodological approach (i.e., its extensive use of the biotechnology), but not in its epistemological approach.

²⁰According to *Conservation International* these spots include Bolivia, Brazil, China, Colombia, Costa Rica, Ecuador, India, Indonesia, Kenya, Malaysia, Mexico, Peru, South Africa, and Venezuela. Together, these countries are home to over 70% of the world's remaining biological diversity.

²¹Notice how recent literature published by international research institutions on population, food security and poverty categorically define these issues as 'environmental issues.' See the following resources for example: Pinstrup-Andersen and Pandya-Lorch (2001) and Wiebe, Ballenger and Pinstrup-Andersen (2001) both of the International Food Policy Research Institute (IFPRI); East-West Center on population prospects in Asia (2002) and the many publications of the International Rice Research Institute on similar concerns.

²²For a comprehensive and more objective treatment of these environmental and related issues see Pingali and Rosegrant (1994), Goettlich (2000), Evenson and Gollin (2002), and Conway (2003).

²³For a detailed discussion of this issue see the article "*Grains of Delusion: Golden Rice Seen From the Ground,*" (2001) jointly written and published by BIOTHA1 (Thailand), CEDAC (Cambodia), DRCSC (India), GRAIN, MASIPAG (Philippines), PAN-Indonesia, and UBINIG (Bangladesh).

²⁴Sims and Bentley's (2002) article "*Participatory Research: A Set of Tools But Not the Key to the Universe*" outlines the different modalities of participation and argued for the decisive mode if participation is to yield genuine results.

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