

**Ecological Surety and Capabilities: Normative Issues**

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## **Abstract**

Does Sen's Capability Approach deal adequately with ecosystems and the services they provide? In this paper, we shall attempt to discuss some aspects of this question by examining human development from an ecosystems perspective, i.e. with an emphasis on how people's quality of life is determined by ecosystem services. In particular, we shall examine Sen's capability approach, interpreting it as an approach that recognizes the crucial role that ecosystems play in enabling people to pursue the kinds of life that they have reason to value,

The central question that emerges is whether an instrumental view of ecosystem services alone is sufficient and if so whether it is sufficient to ensure the integrity of ecosystems. In unpacking our response to this question, we present an account of ecological surety as a critical freedom. Notwithstanding the important contributions of other perspectives on ecological justice, this paper will argue that the capability framework provides an integrated approach that helps untangle the interconnected economic, political and ecological processes that constitute our deeply unequal socioeconomic structures.

The purpose of this conceptual discussion is to suggest how the capability approach enhances the democratic egalitarian content of the concept of ecological surety. We shall also discuss how capability approach-based strategies which offer a more equitable distribution of ecosystem services are currently being implemented.

## **1. Introduction**

The world has seen more changes to its ecosystems—both at the local and global levels—in the second half of the 20<sup>th</sup> century than in any other similar period of time in human history (WRI et.al 2000). Biodiversity is being lost at unprecedented rates. Carbon concentration in the atmosphere is at its highest since the advent of modern civilization and is expected to significantly alter the global climate system. The impact on humans of erratic and changing climatic patterns is immense with many developing countries being the worst affected. In addition to forcing many species to extinction, the disruption in the delicate balance among various organisms has resulted in the deterioration of the various services ecosystems provide. Breathable air, clean water, productive soils, protection against floods and storms, and stable climate systems are some of the direct and indirect products of the complex, symbiotic system we call an ecosystem. The recognition that humanity might be transforming ecosystems more rapidly than it can adapt to them leads environmental philosophers to correctly frame the ecological crisis as an ethical problem, one that requires us to rethink our understanding of the concepts of responsibility and duty vis-à-vis our ecosystems.

What is particularly worrisome is the inability of the planet's ecosystems to maintain human life. Many of the basic necessities of life such as clean air, clean water and productive soils are all products of well-functioning ecosystems. While some would argue that technology should be able to find substitutes for these services, in the long run we will need these services in order to produce the substitutes and there is no escape from this fact.

There is no doubt that ecosystems are integral to human well-being. There is also increasing evidence that points to a close relationship between poverty and deteriorating ecosystems (Duraiappah 2004). Although the causal relationships between poverty and ecosystem deterioration are not clearly known, it is well-established that deteriorating ecosystems do contribute to poverty. Of course it would be naive to say that the poverty we witness in today's world is primarily due to the deterioration of ecosystems. However, although there are many other factors intertwined in the cause of poverty across many parts of the world, deteriorating ecosystems do contribute to the deepening of poverty and further, it is well known that the poor live in the most fragile ecosystems (Hardoy et.al 2001, Jodha 1990) In addition, the poor are the most vulnerable and have extremely limited options in responding to both the short-term and long-term impacts of deteriorating ecosystems. The more affluent can shield themselves from some of the impacts caused by deteriorating ecosystems in the short run but in the long run everyone is at risk.

In September 2000, 146 heads of state pledged in the United Nations Millennium Declaration to spare no effort to free all of humanity—especially future generations—from the threat of living on a planet irredeemably spoiled by human activities and whose resources would no longer be sufficient to meet their needs. In order to achieve what has been pledged by the United Nations will require a fundamental shift in the way we perceive ecosystems. In fact, the term “ecosystem” is rarely mentioned and even in the Declaration it is “resources” that come to the fore, with ecosystems being perceived primarily as suppliers of resources to be used by humans for the fulfillment of material needs. This is primarily an anthropocentric view of ecosystems, wherein the quest is to

find the most economically efficient allocation of these resources. On such a view, ecosystems are purely instrumental in the fulfillment of human needs.

The principal debate in the theoretical environmental ethics literature that began in the 1970s thus centered around the need for a non-anthropocentric approach to valuing the environment. Given the problematic nature of attempts to develop a non-anthropocentric environmental ethic, some environmental philosophers took a Pragmatist view arguing that there is no need for a non-anthropocentric theory of environmental ethics on the grounds that instrumental values were sufficient to ensure the integrity of ecosystems. This paper seeks to scrutinize this claim that a purely instrumental view is sufficient and to suggest an alternative approach that circumvents the anthropocentric/non-anthropocentric dichotomy.

In § 2, we discuss the ongoing debate in the environmental ethics literature. We argue in this section that the anthropocentric Pragmatist position is insufficient and that although the cluster of different non-anthropocentric views seems promising such a view is also elusive. In particular, we argue that neither view is sufficient because each fails to address the question of distributive asymmetries in the access and use of ecosystems. § 3 presents some of the emerging thoughts on ecosystems and ecosystem services and the move away from the perception of ecosystems purely as a resource base towards one that sees them as essential, dynamic life-supporting systems. § 4 and 5 describe why “ecological surety” ought to be a critical freedom within the broader framework of Sen’s capability approach and why it provides an adequate theoretical account that guarantees the integrity of ecosystems.

## 2. The Present Status

How should we value nature? Environmental philosophy has wrestled with this question since the inception of academic writing on environmental ethics in the early 1970's. The central question has been how to value nature such that it is valued for its own sake and not merely because it is needed or appreciated by humans. In other words, the question has been whether nature should have an intrinsic value or whether it should be considered in purely instrumental terms.

Thus, theoretical environmental philosophy has been preoccupied with developing a new ethic for the environment, which goes beyond the conventional ethical doctrines that have been primarily anthropocentric. It is because conventional models of inquiry have not granted moral entitlement to non-human beings that advocates of the concept of an intrinsic value in nature (who are sometimes referred to in the literature as "Holists") have argued that there needs to be a new ethic for the environment and not merely an ethic for the use of the environment. This school of thought has been primarily influenced by the Kantian conception of intrinsic value. (Callicott, 2002) Using the Kantian line of reasoning that intrinsic value is grounded in a value-conferring property that obliges us to treat things as ends in themselves, Holists have argued that non-humans that possess, for instance, properties such as self-preservation or autopoiesis should be treated as ends in themselves and not merely as means. This line of thinking has provided the theoretical basis for the non-anthropocentric environmental ethic as a guide for environmental policymaking.

However, the slow reaction to ecological problems and the continuing debate over the valuation of the environment point to the limited appeal of this theoretical position. A

growing group of environmental philosophers who style themselves as Pragmatists have criticized the Holists for impeding environmental policy by diverting attention from pressing environmental problems to unnecessary, unhelpful and alienating philosophical arguments about justifications for the “value” of nature. Instead, they argue that practically demonstrating the critical instrumental role nature plays in human well-being is sufficient for the protection of nature and ecosystems. Their premise is that non-anthropocentrism is counter-productive to influencing environmental policy (Light, 2002) and they call instead for a weak form of anthropocentrism. (Norton, 1987; Passmore, 1974; Frey, 1983; Hargrove, 1992)

An illustration of this difference in perspectives might be the case of Chico Mendes and the attempt to save the Amazon forest based purely on instrumental values. What is more important? Getting the debates in value theory right or motivating people to act with the commitment to save nature? A survey by Mirten and Manning (1999) has found that the obligation to protect the environment for future generations tends to be very strong. The Pragmatists would argue that relying on such a value system to protect the environment would be time better spent in influencing environmental policy than engaging in philosophical debates on why nature should be preserved for its own end.

The solution is clearly neither one nor the other. A purely instrumental approach offers no assurance that ecosystems will be preserved. Values may be strong for specific species but there is no guarantee that values regarding the preservation of ecosystems based purely on instrumental values will be sufficient. As Dickson (2000) argues, although attitudes towards environmental preservation may be strong, because in modern society most individuals are far removed from environmental issues by the contingent

circumstances of their complex socioeconomic system, this can result in significantly altered ecosystems even when people have strong positive values regarding the preservation of ecosystems.

### **3. Ecosystems and Ecosystem Services**

Sen (2003) emphasizes that the opportunity to live the kind of lives that people value and have reason to value depends—inter alia—on the robustness of the environment. But what does robustness of the environment mean? Does it refer to the conservation of nature in its pristine condition as preservationists would argue or does it mean something more inclusive that takes into account human beings and their symbiotic relationship with ecosystems? On the face of it, the conservationist position seems redundant as there are no ecosystems that have not been influenced by humans in one way or another. The real challenge seems to lie not in preserving some romantic notion of a pristine ecosystem but in finding a way to manage and integrate human activities within ecosystems in a manner that appropriately reflects a symbiotic relationship between human beings and ecosystems rather than one of conflict and deterioration. This brings us to the ecosystem approach.

The United Nations Convention on Biological Diversity (CBD) states that the ecosystem approach is a strategy for the integrated management of land, water, and living resources that promotes conservation and sustainable use in an equitable way. This approach recognizes that humans, with their cultural diversity, are an integral component

of many ecosystems.<sup>1</sup> Very briefly, the ecosystem approach has the following key characteristics:

1. Ecosystems offer provisioning, regulating, supporting and cultural services.
2. These services are not exclusive to each other but are complementary to and inter-dependent on each other; deterioration in one service will cause deterioration in another service.
3. The degree of interdependence among these services is characterized by long lag-times; in other words, it may take many years before deterioration in the regulating services caused by an overuse of the provisioning service will be experienced and its impacts on the other services may take even longer.
4. All three ecosystem services contribute directly or indirectly to human well-being.

It is important to recognize that the ecosystem approach acknowledges that ecosystems offer a variety of services and moves away from the conventional approach of treating ecosystems purely as a resource base. Ecosystem services in turn are defined as the conditions and processes through which natural ecosystems, and the species that constitute them, sustain and fulfill human life. They maintain biodiversity and the production of ecosystem goods, such as seafood, forage, timber, biomass fuels, natural fiber, and many pharmaceuticals, industrial products and their precursors. In addition to the production of goods—the natural resource base—ecosystem services also provide life-supporting functions, such as cleansing, recycling, and renewal, and they confer

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<sup>1</sup> A detailed description of the ecosystem approach is beyond the scope of this paper. On this, see Duraiappah (2004) and the recent conceptual framework report of the Millennium Ecosystem Assessment

many intangible aesthetic and cultural benefits as well. (Daily 1997) The Millennium Ecosystem Assessment team categorizes the various “services” ecosystems provide into four components:

1. Provisioning: Provisioning services are the products obtained from ecosystems, such as food, fiber and fuels, fresh water and genetic materials.
2. Regulating: Regulating services are the life-supporting benefits ecosystems provide for humans such as air quality maintenance, climate regulation, water regulation and purification, and storm protection.
3. Cultural: Cultural services are the non-material benefits through spiritual enrichment, cognitive development, reflection, recreation, social relations, and aesthetic experiences.
4. Supporting: These are the services that are required for the production of all the other three services. Some examples of supporting services are primary production, production of atmospheric oxygen, soil formation and retention, nutrient cycling, water cycling, and provisioning of the habitat.

The ecosystem approach, with its explicit recognition of the various services ecosystems offer and the high degree of inter-dependence among the different services, provides a framework that addresses the issue of robustness of the environment and the need for this robustness if individuals are to live the kind of lives they have reason to value. The ecosystem approach does not focus merely on the optimal allocation of provisioning services. Instead, it focuses on identifying the appropriate use of the provisioning

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team, cited hereinafter as MA (2003).

services in a manner that does not degrade or hinder the regulating, supporting and cultural services. In other words, it seeks to maintain ecological functioning.

But exhaustive conversion of natural ecosystems into human-controlled ecosystems (high flow rates) has jeopardized ecological functioning. The absence of markets and price signals in regulating, supporting and cultural services has meant that changes in their conditions have been ignored. It is also becoming increasingly clear that the public goods nature of these services may make markets redundant in addressing the issue and new methods of ensuring that regulating and supporting services, critical for ecological functioning, are not lost. A new strategy for the use of ecosystems is clearly required.

Maintaining ecological functioning will depend largely on matching appropriate terrestrial and aquatic use to local conditions so that provisioning services are obtained with minimal loss in regulating and supporting functions. In fact, management systems evolved by local communities have achieved this balance in the past by adapting to variability and exploiting diversity, thereby strengthening the resilience of both the ecosystem and the production system. (Mortimore, 1998) However, resilience of ecosystems or ecological functioning break down when economic drivers such as privatization of land and other political constraints (e.g., the change or enforcement of political boundaries that restrict traditional movement of local inhabitants) prevent mobility and resultant flexibility (Gunderson et al., 2002).

A concept closely linked with ecological functioning is “ecological security”. Although the term ecological security is used extensively in the literature, there seems to be very little formal clarity about its meaning. For example, Pirages and Pirages (2003)

write that ecological security moves the analysis of global environmental and resource issues to the next level by developing an “eco-evolutionary” perspective for analyzing emerging problems associated with rapid globalization. They go on to suggest that preserving future ecological security will depend upon maintaining dynamic equilibria among human populations, and between human populations and pathogenic microorganisms, other species, and the sustaining capabilities of nature. The South African Water Act illustrated in Box 1 is a unique example of national legislation attempting to secure ecological security by setting aside an ecological reserve to ensure proper ecological functioning..

#### **Box 1 South Africa’s National Water Act**

In 1998, South Africa passed its new National Water Act called, “Some, for all, forever”. The new National Water Act was unique in many ways. First, the law promotes **equity** by declaring water as a basic human right; the Act guarantees 25 liters of clean water and made available within 200 meters of the home. Second, the law acknowledges internal water requirements by ecosystems to maintain proper ecological functioning. This is done by setting aside ecological reserve requirements—a form of **ecological security**. Third, the law promotes **efficiency** through water allocation and pricing strategies.

In contrast, the Millennium Ecosystem Assessment team defines ecological security as a condition of ecological safety that ensures access to a sustainable flow of provisioning, regulating, and cultural services needed by local communities to meet their basic capabilities (MA 2003). Both definitions are at best “fuzzy”. While the former alludes to some dynamic equilibrium between human and non-human populations, the second insinuates sustainability and equitable access to ecosystem services. However, both definitions have one common element: the setting aside of some critical mass of

living and non-living organisms that in equilibrium will ensure a sustainable flow of all ecosystem services.

Another concept used extensively in the literature is safe minimum standards (SMS), which proposes a socially determined dividing line between moral imperatives to preserve and enhance natural resource systems and the free play of resource trade-offs. By following SMS, a society would rule out actions that could result in natural impacts beyond a certain threshold of cost and irreversibility. Central to the SMS approach are the role of decision-making and the formation of societal values (Tomman, 1995). However, SMS does not acknowledge ecosystem services and their interdependence and its focus remains on natural resources. Moreover, SMS adopts a utilitarian perspective with its emphasis on cost-benefit analysis rather than on distributive issues.

Both ecological security and safe minimum standards provide a framework for developing a critical theory of ethics for the management of ecosystem services. We borrow the strengths of both concepts and develop a concept of “ecological surety” as a critical freedom for human well-being. Before we discuss Sen’s understanding of freedom and how ecological surety fits within this framework of freedoms, let us turn to what we mean by the term “ecological surety”.

#### **4. What is Ecological Surety?**

In the preceding section, we described how ecosystem services contribute towards many basic capabilities. The provisioning service is the more commonly used service and its contribution to material well-being is obvious. However, the direct links between regulating, supporting and enriching services and some basic capabilities have been

largely ignored. The conventional approach to providing basic needs (notice the distinction here between needs and capabilities) has been through increased income and material wealth. The example of clean water illustrates that prevailing options focus on the privatization of water on the assumption that markets will ensure the efficient use of water and that economic growth will provide income to individuals to purchase the water they need without too much difficulty. There are a number of flaws with this picture. First, economic growth alone does not guarantee that all individuals will benefit. Recent experiences in many developing countries attest to this fact. Another problem with this picture is the underlying assumption of an infinite capacity on the part of ecosystems to provide clean water. Therefore, by focusing on the privatization of water, we acknowledge the scarcity of water but not the scarcity of the cleansing properties (or regulating services) required of the ecosystem. We will in fact need to find some way of privatizing the regulating service of ecosystems to ensure that this service is efficiently used. But this then poses another unanswered problem: how can we also address issues of equity and justice?

This brings us to the concept of “ecological surety”. We argue that ecological surety involves more than setting aside a critical mass of an ecosystem—which is ecological security—that will provide an assurance that vital regulating, supporting and enriching services are kept intact. Although even such a provision on its own is quite complex considering that its scope extends beyond just water cleansing activity to also soil regeneration, cleansing of air, climate regulation, flood control and other essential services, the mere setting aside of a critical mass is insufficient. The Indian ecologist Madhav Gadgil tells of a remote village in west central India that set aside about 25

hectares of forest as a sacred grove. Although it was ostensibly conserved for religious reasons, the villagers were well aware of the significance of the forest as a catchment for the stream that ran through their village as well as its other less immediately obvious uses such as its role as a gene bank. The 25 hectares was not a magical number determined by scientific knowledge on equilibria but a number arrived at through some social process. As Gadgil suggests, “It seems probable that cultures have cast prescriptions that lie in the long-term interest of the group and against the short-term interest of individuals ... .”

(Berkes and Folke, 2002)

While the concept of an ecological critical mass is an important constituent element of the concept of ecological surety, we argue that it is equally important to focus on the “process” by which communities might arrive at this critical mass. In doing so, we want to move from the tendency in ecological thinking to focus only on the “opportunity” aspects of these issues, rather than taking a broader perspective that includes the “processes” through which these opportunities come about. (On this, see § 5 below) We argue that the conditions for symmetrical access and distribution can only be met through participatory processes involving individuals in local communities together with other stakeholders with interests in the use of these ecosystems. Not including these processes inevitably results in short-lived community-based ecosystem management regimes promoting ecosystem services that are sabotaged by rent-seeking. Further, the public goods nature of these services makes it difficult for the market to not only ensure efficient allocation but also equitable and fair access and use of these services by all individuals.

However, suggesting the importance of ecological security as a resource that is somehow supplemented by public participation seems insufficient. In the next section, we argue that making the conceptual move from ecological security as a resource to ecological surety as a freedom that is inextricably linked to participatory freedom (and seen within the broader framework of “development as freedom”) is what is required to preserve the integrity of ecosystems.

## **5. Ecological Surety as a Critical Freedom**

In order to understand how the concept of ecological surety might be thought of as a critical freedom within the broader context of Sen’s capability approach, let us turn to the distinctions in Sen’s account of freedom. On Sen’s view, a person’s life can be seen as constituted by various “doings and beings” (or what he calls “functionings”). People can achieve several functionings—from having self-respect to being well-nourished—simultaneously. Every individual thus can be seen as possessing a bundle of functionings at any given time. Of course, some functionings cannot be achieved simultaneously and moreover, there are limits to how much any person can do and be at once. At any given time a person may have a variety of incompatible bundles of functionings that she could achieve. The set of all such bundles, all those within her reach at that time, is her capability set. The term “capability” indicates both that she has internal capacities which allow her to function in ways that she might choose and that

external circumstances are such that the possible functionings are indeed real options for her.

By constituting a person's meaningful opportunities for living, capabilities reflect the appropriate metric for evaluating human well-being, thus replacing other kinds of information as directly relevant to judgement. But why should ethical judgment focus on capabilities? Why not focus on what a person actually achieves (or to use Sen's term, her "functionings")? After all, if one accepts that opportunities are valuable only because they are instrumental to functionings and that one wants a wide range of options because as a result of that range one will eventually do what one most enjoys, then the value of such a set of options can be easily determined by looking only at the value of the best option in it. In this event, the choice among the various options seems worthless. Further, if ethical judgment ought to aim strictly at identifying and improving people's "well-being," does the notion of "well-being" capture all the morally relevant features of a person? Sen's (1985: 186) response to these questions is that "[t]here are goals other than well-being and values other than goals."

On the one hand, our conception of other goals depends on the limits of how we understand the term "well-being". For instance, there may be many instances in which people act against their self-interest. On the other hand, the notion of agency clarifies the position that there might be values other than goals. On the issues of values other than goals, Sen provides the example of two people, one of whom is starving while the other fasts. Although both are undernourished, they clearly have different levels of well-being. Why is the faster better off? According to Sen (1985: 201), the faster could have chosen to not fast which the starver could not have chosen. Thus, the faster is free to be

nourished but the starver is not, or, in other words, the faster has a worthwhile option that the starver does not. One way of attempting to understand how this example illustrates the idea that there might be values other than goals is to focus on how choice makes a difference to the achieved functioning. In this example, the faster enjoys the additional option of choosing to do otherwise. Thus, as Sen (1988:18) clarifies the circumstance of the faster, “[c]hoosing to do  $x$  when one could have chosen any member of set  $S$ , can be defined as a “refined” functioning.” The value of the refined functioning (in this case fasting) resides in the fact that it is chosen, which cannot be said of an unrefined functioning (in this case starving). After all, no one chooses to starve. This example captures, by extension, the absence of choice that the poor and vulnerable sections of society face when unable to access various ecosystem services due to the unavailability of these services on the menu of available options.

The value of choice internal to a refined functioning is absent in the case of unrefined functioning. Thus, unrefined functionings do not exhaust the evaluative space with which moral judgments must be concerned; rather, a person’s real options for living—her capability set—must be kept in view. Thus, for Sen (1989:770):

Freedom is valuable in itself, and not only because of what it permits us to achieve or do. The good life may be seen to be a life of freedom, and in that context, freedom is not just a way of achieving a good life, it is constitutive of the good life itself.

To turn from this for the moment, we have seen that Sen opposes the position that well-being alone might be sufficient as an informational basis for moral judgment. Instead, on his view, it is only by taking well-being and agency together, that we can address the

question of “what we have reason to value”. Thus two very different kinds of freedom emerge: “well-being freedom” which concerns one’s freedom to have valuable functionings and “agency freedom” which concerns one’s freedom—as a responsible agent capable of valuing and choosing objectives for oneself—to achieve the goals and values one considers important. (Sen, 1985: 203-204) As he puts it:

In one perspective, a person is seen as a doer and a judge, whereas in the other the same person is seen as a beneficiary whose interests and advantages have to be considered. There is no way of reducing this plural information base into a monist one without losing something of importance. (Sen, 1985: 208)

Sen makes a further distinction in his version of “agency freedom” that corresponds to the distinction between two different kinds of success (or achievement): (i) realized agency success which is “the realisation of one’s objectives regardless of one’s role in bringing about that realisation,” and (ii) instrumental agency success which is “the occurrence of such things brought about by one’s own efforts (or in the bringing about of which one has oneself played an active part)”. (Sen, 1992: 57-58) While for the former, it does not matter who controls the bringing about of the objectives one values, for the second, it matters not only that one values the objectives but that one has direct control, i.e., that one pursues those objectives oneself. Linked to these two kinds of achievement are two kinds of freedom: “effective freedom” and “control freedom.”

Sen argues that control freedom is a limited view, since “many freedoms take the form of our ability to get what we value and want,” regardless of whether we directly exercise control over bringing about these outcomes. (Sen, 1992: 64) It is indeed often impossible to exercise control over every aspect of our own lives. Despite this, we

consider ourselves free even in the aspects of life that are beyond our control. Thus, we can talk about being free from ecological deterioration, as it were, even when the relevant policies are brought about by others. However, the fact that such an achievement is brought about because we value it—i.e., “for that reason (whether or not it is valued for any other reason as well)” —justifies calling it freedom of a sort. As he puts it, “As long as the levers of control are systematically exercised in line with what I would choose and for that exact reason, my ‘effective freedom’ is uncompromised, though my ‘freedom as control’ may be limited or absent.” (Sen, 1992: 69)

Thus, three kinds of freedom emerge from the above discussion: (i) well-being freedom, which is the real opportunity to achieve functionings that are to one’s personal advantage; (ii) control agency freedom which is the real opportunity to achieve one’s valued broader ends (including well-being) oneself; and (iii) effective agency freedom which is the real opportunity to have one’s valued broader ends (including well-being) achieved precisely because they are one’s ends.

These distinctions capture Sen’s more general point that freedom must be seen in terms of “both the processes that allow freedom of actions and decisions, and the actual opportunities that people have, given their personal and social circumstances.” (Sen, 1999: 17) Further, each type of freedom merits inclusion in the plural informational base of adequate moral judgement and as Sen has argued, a general approach to social arrangements can analyze various irreducible freedoms in the same space without the need for a single evaluative standard. These various distinctions in the analysis of freedom allow us to keep the roles that each kind of freedom plays in the overall evaluation distinct for different purposes of analysis. The point is to emphasize the role

of human freedom as the proper space for the practice and evaluation of development. It is important to note that, on this view, not only does freedom provide a mechanism for evaluation, but it also enhances the ability of human beings to influence their own lives and the world around them.

Thus, well-being freedom and agency freedom are both necessary informational bases for moral judgment. In light of the critical importance ecosystem services have for human well-being, there is no doubt that well-being freedom is a necessary condition. But is it a sufficient condition to maintain ecological integrity? From the above discussion, it seems clear enough that we must also focus on agency freedom. Thus, in ensuring ecological surety, while the immediate concern may justifiably be on getting people into a situation where they are able to flourish adequately vis-à-vis their ecosystems, it is necessary to think of ecological surety more broadly as a sort of effective agency freedom (rather than merely as a sort of well-being freedom). In addition, the concept of ecological surety seems to be similar to a human right (in that it is a right shared by all and the benefits of which we should all have). As with a human right, it is enough to conceptualize “ecological surety” as a freedom in order to provide a plausible basis for policy making. (Sen, 1999: 230-231)

Its recognition of the important roles of value-formation, the collective nature of the decision making process, and the equal and joint ownership all seem to enhance the analytic as well as practical usability of such a conception of ecological surety.

## **6. Concluding Remarks**

The world of Senian freedoms implicitly relies on a normative conception of individual human agents creating value by their creative engagement with the world, their choices (reflecting not just practical reason but deliberation about what values to pursue) and in turn constituting sources of value. In this paper, we have attempted to show how crucial ecosystems are to the process of development and to human freedom and vice versa. We have argued that the conceptual move that needs to be made is from a notion of ecological security as a resource to ecological surety as a freedom that is inextricably linked—in that it depends on as well as expands—to participatory freedom as well as other kinds of freedoms. Thus, the concept of ecological surety directly addresses the critique that democracy and ecological values are incompatible. (Goodin, 1992) Along with its recognition of the role of value formation, it acknowledges that “public participation in ... valuational debates—in explicit or implicit forms—is a crucial part of the exercise of democracy and responsible social choice.” (Sen, 1999: 110) For instance, as Sen has shown, low fertility rates in South India in the absence of state coercion suggest the formation of values about smaller families through increased female literacy rates and public discussion. Since meaningful participation requires elementary levels of knowledge in order to enhance political awareness, the interconnections between all these various kinds of freedoms are adequately captured by the concept of ecological surety.

While this emphatic integration of participatory freedom might seem to point towards a concept of “ecological citizenship,” (Dobson, 2003) it is our contention that a view of ecological responsibility grounded in citizenship is problematic because it obscures the analytic centrality of human freedom (with its focus on “citizenship”) and perhaps more importantly, it also does not adequately address the need to pursue institutional reforms in

situations where value formation does not work.<sup>2</sup> In contrast, by focusing on the space of freedom, “ecological surety” can be analyzed as a freedom akin to—and on the same footing as—the five types of instrumental freedoms that advance the capabilities of human beings. (Sen, 1999: 10)

In conclusion, what ecological surety as a critical freedom resists is the detachment of ecosystems from the exercise of human freedom, as seems to be the case with the almost all the other theoretical approaches to environmental ethics. Further, it is only within the freedom-oriented perspective of Sen’s capability approach that ecological surety can be conceptualized as integral to individual human lives (and indeed to human life) thus providing a genuinely egalitarian, democratic theoretical framework for ecological policy making.

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<sup>2</sup> See Sen (2004) for a discussion of the roles of citizenship in ecological policy.

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