

Understanding Population Environment Interactions: Sustainable Livelihoods Framework and the Social Ecological Approach

Panel Contribution to the Population-Environment
Research Network's Cyberseminar on
Theoretical and Methodological Issues in the Analysis of
Population Dynamics and the Environment, February 2009
<http://www.populationenvironmentresearch.org/seminars.jsp>

by Rimjhim M. Aggarwal,
Assistant Professor, School of Sustainability, Arizona State University
Email: Rimjhim.Aggarwal@asu.edu

Part 1: Setting the stage

As the background paper points out, the social-ecological approach helps us situate the population-environment relationships within a broader understanding of nature-society interactions. These nature-society interactions can take different forms depending on what scale (spatial, temporal or social) we are considering and what aspects or subsystems within the social-ecological system we are interested in focusing on. Different population-environment (PE) theories reviewed in the background paper can be viewed as illuminating different aspects of this complex interaction. All of these theories serve a purpose so long as we keep in mind the underlying assumptions and are careful about the scale at which they operate. Thus for instance, as the discussions on the cyber seminar reveal, the Malthusian theory still has strong appeal and there are a class of problems where it still applies. In my home country, India, I can identify specific sites and specific time periods in history where I think the Malthusian pressure has been intense because the feedback effects (through let's say technological, institutional or policy responses) have not been strong. However, over a longer time scale or for India as a whole, this diagnosis certainly does not hold true and could be seriously misleading in terms of its policy recommendations. We have to constantly guard against the tendency to apply a specific theory, developed for a particular scale and under specific assumptions, as a hammer that can fix all problems. Therefore I welcome the objective of this cyber seminar to explore this rugged landscape of population-environment interactions and grapple with how the different theories explain different features of this landscape.

To understand the complexity of population-environment interactions and to effectively translate it into praxis - without reducing it to a set of simple linear relations - we need to identify key variables, their interrelationships and resulting outcomes across different scales (spatial, temporal and social – as laid out in the background paper p.14). How does one identify the key variables and their interactions within a complex system? To me, it is the problem one is studying that provides us an **entry point** into the web of relationships embedded within such systems. From this entry point one can then identify which relevant parts of the system seem strongly or weakly coupled. Let me illustrate this with my own area of research which is to understand how poverty affects and is affected by population and environment dynamics. Here the most natural entry point is to begin by understanding sustainable livelihoods. The concept of “livelihoods” provides a very strong anchor that appeals at a very intuitive level to both practitioners and academics working on causes and consequences of poverty and vulnerability.

The sustainable livelihood (SL) framework, as it has developed over the past decade or so, encompasses several different theories and disciplinary approaches, like the supply system approach proposed here. A poor household may engage in multiple resource extraction activities (water, fodder and firewood collection, cultivation, fishing) simultaneously. Thus livelihood strategies and outcomes have a direct impact on and are impacted by dynamics of the resource flows. Several demographic variables at the household level- such as migration, family size, morbidity, and mortality - are also part of the livelihood strategies. Thus, at the micro (household) level, decisions regarding resource extraction and consumption are inextricably linked with demographic variables. The SL framework has been very useful in terms of helping us understand the interactions between household assets (natural, human, social, financial, and human), vulnerabilities, underlying policy and institutional factors, and their impacts on livelihood strategies and outcomes. From a systems perspective, a key challenge of the SL framework has been regarding how to link underlying relationships and processes at the household level (which it elucidates very well) to the community, regional, and global level. In most research based on SL framework the macro environment (in terms of institutions and policies) is taken to be exogenously given and the analyses focuses on the impact of these exogenously given drivers on livelihood strategies and outcomes. Multilevel and cross-scale interactions that are key to the understanding of complex systems have not yet made much headway in actual applications of the SL framework.

The issue I hope we can address in subsequent postings is regarding how the SL framework and the supply system framework can complement each other to enhance our understanding of population-environment interactions at multiple levels. I think an understanding of decomposable systems (from complexity theory) and nested conceptual maps can help us better integrate these theories. I will discuss these in my next posting and would encourage others to contribute as well. I also think it would be useful to put more flesh around the supply system approach (in the form of delineation into subsystems with specification of key variables and relations etc.). This would help to better translate the approach into praxis. As I mentioned before, one of the strong features of the SL approach is that it appeals at a very intuitive level to development practitioners. I think this is because it has a strong core (defined as elements of livelihood –the assets and their relationships) which it then relates to strategies and outcomes at different levels, given certain mediating factors and processes. It grapples with complexity within the subsystems and the time scales that seem relevant for development practitioners on the ground, though perhaps not for planners, working on somewhat different time and spatial scales. The development community has not only widely adopted this approach but also contributed significantly to refining it by delineating the key variables and relationships that become relevant for studying specific problems. These are some of the important lessons in terms of praxis and action embodied in the SL framework that I think would be worth discussing.

Part 2: Exploring the links between Sustainable Livelihoods (SL) framework and SES approach

1) I agree with Diana that CHANS or SES “represent abstractions models of real world contexts, processes and structures” (email on PERN cyberseminar dated February 10, 2009). However I don’t think that there is necessarily a “distinction between real world phenomena, i.e. concrete things and processes and abstract objects.” Take the case of the sustainable livelihoods (SL) framework, for instance. Through a long period of collaboration between academia and on-the ground development agencies it has evolved a set of methodologies focusing on identification of key variables and their interactions that have been very useful at the policy and praxis level. It is true that SL framework is focussed largely on micro and meso scale. Question is: how can we

link this type of analysis to study phenomena at other scales or to study cross-scale interactions? The suggestion I made in my earlier panel statement is to use the concept of nesting and decomposable systems. A very good illustration of this comes from the work of Elinor Ostrom on using the SES approach to understand the governance of the commons (Ostrom, 2007). She emphasizes the “importance of identifying the conceptual tiers and linkages among variables that constitute an SES as it affects and is affected by larger and smaller tiers.” I think that SES approach is a powerful conceptual tool but it needs more “digging into” and more structure around it (perhaps through the conceptual tiers that Ostrom suggests) to make the relationships and processes it alludes to more explicit for practical use. This is also related to the Professor Krishnan’s email regarding the “apparent” lack of political and economic processes in the SES approach. I agree with Alexandra that these processes are embedded within the SES approach but my suggestion would be to make it more explicit in the laying down of the framework.

2) To illustrate the above argument, let us take the Ghana case as elaborated in Alexandra’s email (I must confess I have not read the original paper by Janowicz so my comments are based on the summary that Alexandra provided). One way to read what is going on is to say that enhanced provisioning security in urban areas and reduced security in rural areas explains the urban dynamics and the migration patterns. The other way, which is what I think the author intends to show, is to delineate the different conceptual tiers and how these are linked in order to lay out the complex web of interrelated processes here. One tier could relate to the micro aspects of livelihoods of the farmers in rural areas and how the political imperative to keep food prices low affects their livelihood strategies, one of which is the decision to migrate. A second horizontal tier could similarly capture the livelihoods of urban and periurban poor. At the next vertical tier one could capture the meso level features of food supply, accounting for regional dynamics. A still higher level could capture the global flows (through exports and imports, financial flows etc. – see for example, Aggarwal 2006).

What do we gain by this detailed multi-tiered conceptual mapping? I think it enables a richer understanding of the underlying processes. Let me illustrate what I mean by offering the case of India as a contrast to Ghana. In India too, there has been a strong political imperative to keep food prices in urban areas low. But this has been accompanied by strong pressure from farmers to keep procurement prices, for at least major cereals such as wheat and rice, quite high. Thus, at the micro level, the livelihood strategies here are quite different. High food procurement prices initially led to agricultural intensification which for some time stalled the process of rural to urban migration, relative to what has been observed in other developing countries. Over time, however, agricultural intensification has led to degradation of local ecosystems. This, in turn, has had led to falling agricultural incomes leading on to greater pressure for migration. On the urban side, mounting deficits in recent years (together with neoliberal policies) have put pressure on government to reduce food subsidies, thus escalating the problem of urban food security and reducing the pull factor to urban areas. My point here is that in order to capture the richness and diversity in these different case studies we need a conceptual framework that more clearly lays out the key variables and relationships at different scales.

References:

- Aggarwal, R.M. 2006. “Globalization, Local Ecosystems, and the Rural Poor,” World Development Special Issue on “The Impact of Globalization on the World’s Poor.” 34 (8): 1405-1418.
- Ostrom, Elinor. 2007. “A diagnostic approach for going beyond panaceas.” Proceedings of the National Academy of Sciences of the United States of America. 104(39):15181-15187.