The Environment-poverty Nexus in Evaluation: Implications for the Sustainable Development Goals

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Abstract

The article emphasizes the importance of evaluation in the context of sustainable development. It focuses on the so called environment-poverty nexus where issues of environmental conservation and management meet the social and economic development needs. Given the threats to the global environment and the forces of economic development that work against it, it is crucial that environmental policies, strategies, programmes and projects are designed and implemented in an effective manner producing lasting impacts. Evaluation is a central tool for analysing what works, why and under what circumstances to inform policy making and programme design. Environmental evaluation faces specific challenges due to the complex nature of the environment-poverty nexus. Based on a review of evaluation literature and practical experiences with evaluations conducted on the nexus in the international development arena, the article draws lessons for evaluating sustainable development. It concludes by suggesting that strong evaluation be built into the new Sustainable Development Goals.

This article focuses on approaches to evaluate the nexus between environment and poverty in international development. The first section briefly reviews where the international community stands now that the Sustainable Development Goals (SDGs) have been approved by member states. The next section highlights challenges that are posing strains on the global environment and sustainability of human societies. The article then moves on to evaluation, drawing lessons from evaluation studies that have been conducted in the context of international cooperation. The following section considers the implications for evaluation approaches. The article concludes by suggesting implications for evaluating the SDGs and pulling together some lessons for the evaluation of the environment-poverty nexus and sustainable development.

1. The state of affairs

We are at an historical juncture where the world is facing the multiple challenges of tackling poverty and growing inequality between and within countries, while environmental degradation and global climate change are threatening the sustainability of the natural systems that we depend on for our livelihoods.

The global community is embarking on the 2030 Agenda for Sustainable Development adopted in September 2015. The SDGs are building upon the internationally agreed Millennium Development Goals (MDGs) that have now come to an end. The new SDGs and the post-2015 development agenda have been negotiated through an inclusive process under the auspices of the United Nations and based on the outcome document of the Rio+20, 'The Future We Want,' more than twenty years after the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992. Unlike the MDGs that focused on the developing countries, the SDGs are universally applicable to all countries.

Another major milestone in 2015 was the Paris Climate Summit[1] that achieved a new international agreement to replace the Kyoto Protocol, adopted in 1997, to combat climate change. The aim is to keep global warming below 2°C, considered by a scientific consensus to be a critical point crossing which could lead to uncertain consequences. Such an agreement is a major step in a global transition towards resilient, low-carbon societies and economies.

Sustainable development is defined as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (UN, 1987, chapter 2, paragraph 1). The concept thus integrates human needs and the ability to provide for them in perpetuity. The notion of intergenerational equity is central to sustainable development. It is commonly understood that sustainable development encompasses economic, social and environmental dimensions. It is recognized that there is a nexus between environmental and economic and social factors, which manifests itself at many levels. Focusing only on economic growth will not place the world on a sustainable path. Yet, according to the World Bank, there were 2.2 billion people in the world in 2011 living on less than US$2 per day. Equally disturbing, inequality between and within nations has grown to epic portions. At the same time, world population continues to grow and the UN projects that

world population will reach 9.6 billion by 2050, up from the current 7.2 billion. The fastest increases in population will take place in Africa and the Middle East, the regions with the least resources to provide adequate employment, health and education to their young people. It is essential to address these issues for sustainable development.

However, it is safe to say that the planetary boundaries that are already stretched would not be able to sustain a growing world population at the same levels of affluence that the industrialized countries currently enjoy. Therefore, issues of consumption, equity and access to resources are central to sustainable development.

Despite a rising awareness of environmental issues, most global environmental trends continue to decline. While public funding to global environmental projects and programmes is at a relatively high level, it still is dwarfed by financial flows to environmentally destructive subsidies, such as fossil fuels, unsustainable agriculture and other harmful practices. Since its establishment in 1991, the Global Environment Facility (GEF) has provided US$14 billion and leveraged US$74 billion as co-financing for projects dealing with biodiversity conservation, climate change, land degradation and sustainable forest management, international waters, and chemicals in 165 developing countries. The recently established Green Climate Fund received pledges to the amount of US$10.2 billion.[2] However, the funding needs for action on global environmental issues are estimated at US $100 billion per year, while the global public subsidies that lead to overexploitation of natural resources and environmental degradation amount to some US$1 trillion annually (GEF, 2014).

Consequently, environmental policies, strategies, programmes and projects must be focused and effective. Evaluation has in recent years become increasingly powerful in determining, not only that the projects and programmes that we implement are doing what they set out to do and spending tax payers money efficiently but – more importantly – that we are actually making a difference in people's lives and the global environment, thus contributing to sustainable development.

2. Environmental trends

Anthropogenic pressures on the Earth's environment have already exceeded the planetary boundaries in several dimensions thus threatening the stability of the global environment (Rockström et al., 2009). Research by the Stockholm Resilience Centre suggests that planetary boundaries for what is safe have already been exceeded in three dimensions: biosphere integrity, biogeochemical flows, and freshwater use. Land-system change and climate change are classified as being in the zone of uncertainty and increasing risk.[3]

New research conducted using NASA satellite data demonstrates that the resilience of many major groundwater storage areas is threatened by unsustainable levels of water use that depletes the aquifers (Richey et al., 2015). Notably, virtually all aquifers in North Africa and the Middle East are being depleted; but also water levels in large aquifers such as the Guarani in South America and the California Central Valley aquifer system are shrinking. Similarly, three-quarters of the world's fisheries are either fully exploited or over-exploited, and on land we are facing a loss of species at a rate that has not taken place ever during the time that humans have inhabited the planet. A quarter of all mammals are under threat of disappearing. Deforestation caused by conversion of lands for agriculture, forestry monoculture, industrial sites and settlements destroys habitats and modifies ecosystems that thus become hostile to a large number of species, large and small. Land lost under highways and transportation infrastructure not only takes space but fragments it so that wildlife cannot survive. What we consume daily contributes to this. Some 80 per cent of tropical deforestation is caused by land clearing for the production of three commodities only: soy, beef and palm oil, which in turn threatens biodiversity, soil and water resources, as well as increases greenhouse gas emissions.

The environment-poverty nexus is based on the fact that poor people tend to depend more directly on environmental resources for their livelihoods. They often work in agriculture, which depends on the quality of soils and availability of water; they collect firewood for their energy needs; and they fetch water not from a tap in their houses but frequently from natural water sources and wells. Coastal fisheries that provide sustenance both in terms of fish protein and employment to some 60 million people, half of them women, are highly stressed. Degradation of any of these natural resources thus has an immediate impact on the well-being, nutrition and health of the local population. Indoor air pollution caused by cooking with solid fuels has been estimated to be responsible for 4.3 million deaths in 2012, 7.7 per cent of global mortality (PEI, 2015). This affects in particular women and children.

Climate change impacts are still difficult to account for statistically (Pielke, 2014), but again the poor people are most vulnerable to the impacts as they are the ones with the least capacity to respond to or recover from and adapt to climate-related shocks (PEI, 2015). Climate change affects them directly through changing weather and rainfall patterns that have a direct effect on agricultural production. Small island developing states are faced with the risk of increased frequency and severity of storms, sea level rise and associated salinization of groundwater. They can be seen as victims of global processes that they barely contributed to (Pelling and Uitto, 2001).

More controversial is whether and how much poor people contribute to environmental degradation. The case has been made frequently that poverty is closely linked to environmental degradation in Africa and elsewhere, as the poor people concerned with their immediate needs overuse land, forest and other natural resources. The common conclusion is that sustainable development requires growth that reduces poverty while taking into account environmental concerns (Dasgupta et al., 2005; Lufumpa, 2005). This common sense view has been challenged as, at its most simplistic, blaming the victims, the poor people, for environmental

degradation. Political ecology explanations have focused more on issues of power and scale thereby producing a more nuanced view (Blaikie and Muldavin, 2004; Gray and Mosely, 2005).

3. Evaluating the nexus

A number of independent evaluations conducted by the GEF and the United Nations Development Programme (UNDP) have shed light on the environment-poverty interlinkages and how they have been dealt with in the programming of multilateral agencies. These issues are subject to practical considerations in the planning and implementation of programmes and projects by the organizations. For example, UNDP country programmes all around the world must find workable ways of addressing the nexus (Uitto, 2014a). UNDP's mandate is to foster development and to help countries to eradicate poverty and reduce inequality and exclusion, but a large part of its environmental work is GEF-funded and aimed primarily at addressing global environmental issues. Although these mandates overlap, they are not identical and potential conflicts arise (Stewart et al., 2009). Consequently, evaluations contribute to real-life questions and solutions faced by policy makers, funders and practitioners in international development.

A global evaluation conducted under the auspices of the GEF on the role of local benefits in global environmental programmes (GEF, 2006) confirmed the close interlinkages between local and global. Such linkages would become increasingly important especially in programmes and projects that deal with biodiversity conservation and land degradation in production landscapes, as well as with climate change adaptation. Studying a sample of 132 projects and 113 project final evaluations, the evaluation concluded that 'win-win' situations to provide economic benefits to local populations and conserving the environment were not easy to identify and in some cases trade-offs were necessary. Alternative income-generating activities and ecotourism that GEF projects favoured were often not adequate to substitute for the livelihood sources from natural resource use. The evaluation recommended that the GEF should develop more systematic ways and expertise to integrate local benefits and to deal with such trade-offs in its programming.

In another evaluation conducted by the UNDP evaluation office, the focus was on the poverty-environment linkages in UNDP programming at the global, regional and country levels (UNDP, 2010). The evaluation took both a prospective and a retrospective perspective at the relevance, effectiveness, efficiency and sustainability of UNDP's work in this respect, with the intention of contributing to future strategies and programming. The evaluation also sought to identify good practices from the field that could be used as models. The evaluation found that while strategic planning and advocacy on the nexus was occurring in UNDP, it had not translated systematically into concrete programming. The understanding of the linkages in the organization was varied and the pockets of good practice had not been effectively communicated or replicated. One of the key findings was that UNDP's internal organizational and financial architecture that divided programming into parallel silos of poverty reduction, governance, environment, and crisis prevention and recovery was one of the key factors hampering integration. As a result of the evaluation, UNDP started addressing these issues. Yet, working on integrated approaches around the nexus will always be challenging, as it is more complicated and will require people from different disciplinary backgrounds to work together (Stocking, 2014).

The Small Grants Programme (SGP) funded by the GEF and implemented by UNDP has shown significant achievements in integrating local development concerns with global environmental programming. Established in 1992, the SGP is a global programme working in 125 countries funding small projects at the local level and working with community groups, civil society organizations, indigenous people and other non-governmental actors. A recent independent evaluation confirmed that the SGP projects are generally effective, efficient and relevant in achieving global environmental benefits, while addressing livelihoods and poverty and promoting gender equality and women's empowerment. The evaluation further found that replication and scaling-up of SGP initiatives and approaches is taking place (GEF and UNDP, 2015).

From an evaluation point of view, a programme such as SGP consisting of thousands of diverse local projects across a large number of countries poses specific challenges (Chen and Uitto, 2014). The first challenge pertains to aggregating the results of individual projects to a country or global level. The SGP projects fall into the GEF focal areas mentioned above. Simply adding up project level indicators may not produce meaningful information at the aggregate level when the local environmental context and the focus of the projects differ so dramatically. A second major challenge pertains to the indirect results of SGP, including those that take place through policy influence, replication and up-scaling. It will be often impossible to attribute many of these results to the SGP, but the evaluators attempted to establish a plausible contribution of the programme to them.

4. Implications for evaluation

Evaluation approaches and methodologies are constantly refined and become increasingly rigorous. What is common to many is variations of the so called theory-based approach to evaluation (Weiss, 2004). The theory of change – or logic model – is used to understand how interventions are designed and intend to achieve their goals. The range of approaches and methodologies available to conduct impact evaluations is widened beyond randomized controlled trials and other experimental methods to embrace mixed methods (Stern et al., 2012). Again, the goal is to establish a plausible contribution of the intervention to the observed change, rather than a statistically significant probability attribution model. Evaluators are increasingly embracing systems theory approaches to understand complex systems and to isolate effects of the programme, project, strategy or policy that is the evaluand (Bamberger et al., 2016). A complex

system is characterised by how its elements act in interconnected and interdependent ways, and how feedback loops and intervening factors produce unexpected consequences and discontinuities. All this challenges the use of linear models for detecting causalities between parts of a system.

Environmental evaluation has some challenges specific to it (Birnbaum and Mickwitz, 2009). These are partly because environmental issues are exceptionally complex and the environment-poverty nexus has many dimensions and is hard to crack. The challenges include the often long timeframes of environmental phenomena as opposed to the normally more limited timeframes of interventions. Similarly there is the geographical scale, which often differs from the boundaries of the intervention: watersheds are divided between jurisdictions, transboundary conservation puts strains on cooperation, etc. There are challenges with data availability, quality and credibility. There are specific issues pertaining to research designs that pose challenges for assessing attribution of environmental change to the policies and programmes.

Two-system evaluands have been proposed to address differences in temporal, spatial and organizational scales of the natural and human systems, as well as to deal with the potentially different values among different groups of stakeholders (Rowe, 2012). Rowe makes the point that evaluation of human interventions in natural settings should always address both the human and natural systems. The different scales of these systems pose additional challenges to establishing counterfactuals and isolating the contribution of a specific intervention in the larger natural system.

It is important to have clarity of what is meant by the different levels of results and what can interventions be held accountable for (Uitto, 2014b). Evaluation has moved far beyond monitoring that interventions conduct their activities on time and produce the foreseen outputs. What evaluations most often attempt to measure are the outcomes that go beyond the direct results. In environmental cases, such outcomes would normally refer to factors that may reduce environmental stressors (for example, environmental legislation is enacted and enforced; point-source pollution is curtailed) that may lead to the desired positive impact on the ecosystem (for example, deforestation is halted; fisheries in a waterbody recover). The GEF developed an approach to evaluate the likelihood of interventions leading to lasting environmental impact, named review of outcomes to impact (ROtI) (GEF, 2009). Building on the theory of change approach, ROtI assesses how a project is expected to contribute to outcomes and impact beyond its completion. The outcome to impact pathways are elaborated to identify assumptions and external drivers that need to materialize for the intervention to reach its intended impacts.

However, even the ROtI approach has its limitations in dealing with complex situations and systems. Based on extensive work on evaluating the impact of GEF-funded programmes, Garcia and Zazueta (2015) call for moving further to mixed approaches that are suited to dealing with complex systems within which interventions take place, such as a basin or any large ecosystem in which natural, political and social system boundaries may or may not overlap. It is important to understand the system boundaries and components, and the interactions and emergent properties between them. This will help us to define the evaluation scope and appropriate units of analysis, and consequently the appropriate methods for data collection and analysis.

There are also emerging issues that environmental evaluators must address. Notably, climate change puts an emphasis on uncertainty and risk, where linear models will no longer apply and tipping points may be unpredictable. Evaluators need to think carefully about what this means for evaluation and how these factors are built into approaches and methodologies.

Some of the directions emerging from reflection on environmental evaluation pertain to the need for moving away from evaluating individual interventions to evaluating the environment and development outcomes and impact. Given that much of the environmental work is done against opposing societal forces (commercial interests, subsidies to environmentally harmful practices, etc.), it is not adequate to evaluate whether projects are achieving their outputs. There appears to be a micro-macro paradox where most individual interventions appear to be successful, but they fail to influence the overall negative trends at the global level (Berg, 2011). Evaluation must help understand whether the interventions are making a difference and the reasons behind success and failure, and whether our theories of change and logic models hold under complex conditions.

There is a need to develop a more integrated and holistic evaluation framework demonstrating the linkages between the environmental, economic and social pillars. Evaluation should contribute to understanding how to better incorporate environmental concerns into development efforts in the national and global contexts. It is also important to document and disseminate the lessons from evaluations; therefore, knowledge management must be seen as integral (Batra et al., 2015).

5. Implication for evaluating the SDGs

The SDGs are intended to be action oriented, global and universally applicable. Yet they are intended to reflect national realities, capacities and levels of development, and to respect national policies and priorities. These dimensions reflect the tension between universality and realities on the ground in all of the 193 member states of the United Nations. Understanding the importance of context, it is inevitable that each of the goals must reflect national conditions.

There are seventeen SDGs,[4] each of which is intended to address the three components of sustainability – economic, social and environmental – but the balance between the three varies considerably The complexity is considerable:

1. End poverty in all its forms everywhere.
2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
3. Ensure healthy lives and promote well-being for all at all ages.

4. Ensure inclusive and quality education for all and promote lifelong learning.
5. Achieve gender equality and empower all women and girls.
6. Ensure access to water and sanitation for all.
7. Ensure access to affordable, reliable, sustainable and modern energy for all.
8. Promote inclusive and sustainable economic growth, employment and decent work for all.
9. Build resilient infrastructure, promote sustainable industrialization and foster innovation.
10. Reduce inequality within and among countries.
11. Make cities inclusive, safe, resilient and sustainable.
12. Ensure sustainable consumption and production patterns.
13. Take urgent action to combat climate change and its impacts.
14. Conserve and sustainably use the oceans, seas and marine resources.
15. Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss.
16. Promote just, peaceful and inclusive societies.
17. Revitalize the global partnership for sustainable development.

The intergovernmental process has set targets (169 of them) and the development of indicators is currently underway by national statistical offices under the UN Statistical Commission auspices for each of the SDGs. Still monitoring them, as important as it is, will only provide us a crude yardstick of whether countries are on track towards achieving the goals. Evaluation is needed to enhance our understanding of why progress is made in one dimension or location, while it is stalled in another.

As apparent from the list, the SDGs must be seen as aspirational, rather than programmatic goals, and evaluation designs must consequently treat them as such. This is further emphasized by the need to operationalize the SDGs at the country level. Obviously, not all goals are equally applicable to all countries. There are also issues pertaining to the evaluability of the SDGs, given their formulation. Work has started on attempting to assess the evaluability of some of the goals, for instance under UNEG, to reach agreement on evaluation criteria and approaches. However, much more needs to be done. Evaluators must understand both the science (mechanisms of environmental change) and political (e.g., national and jurisdictional borders) dimensions in order to draw the system boundaries for evaluation. They will then have to establish how components interact with each other. Based on these considerations, they can then select the appropriate approaches and methodologies for evaluating each of the SDGs.

In October 2015, an unprecedented gathering took place in Thailand bringing for the first time together the main international evaluation networks, including UNEG, the Evaluation Cooperation Group of the International Financial Institutions, the OECD/DAC Development Evaluation Network and the International Development Evaluation Association (IDEAS). The gathering, agreed upon a declaration on Bangkok Principles on National Evaluation Capacity for the Sustainable Development Goals.[5] The declaration calls for evaluation to contribute to the SDGs by identifying achievements, challenges, gaps and critical success factors in achieving the SDGs, as well as supporting the identification of solutions and best practices, and promoting coordination and effectiveness of the international development system. It further emphasizes the need for analytical rigour and evidence informed by country-led evaluations and data.

The Bangkok Declaration further recognizes the need for disaggregating the work on evaluating the SDGs through evaluability assessments pertaining to individual countries and sectors. It recommends conducting country-level SDG evaluation needs reviews and diagnostic studies. It is of utmost importance to strengthen national capacities, especially in the developing countries' data systems and evaluation programmes.

6. Conclusions

This article has highlighted some issues pertaining to evaluation in the interface between environment and development. While the two are closely interlinked in what can be called the environment-poverty nexus, they often manifest themselves in different dimensions. At times there are trade-offs in dealing with environmental conservation vs. economic development, but oftentimes the goals are mutually reinforcing. Such is the case for example in enhancing the use and benefits from biodiversity in agricultural production or protecting scarce water resources. Adaptation to climate change would also fall squarely into the category. All cases are characterised by complexity.

Evaluation can contribute significantly to devising strategies and designing interventions that address environment and development challenges. Based on a rigorous analysis of experiences on the ground, evaluation helps understand what works, why, and under what circumstances. Such knowledge is very helpful for promoting learning and improving future performance.

Theory-based evaluation approaches emphasize understanding the causalities in the intervention strategy and how the intervention is intended to reach its objectives. Theory-based evaluation goes beyond simply measuring impact to shedding light on the conditions why interventions achieve results and why they do not. Yet, traditional logic models may not be able to adequately deal with complex systems in which all interventions take place and where linear causality between components of the system is often obscured by interdependencies and feedback loops between them. It is also important to identify and understand unintended consequences. In evaluating the environment-poverty nexus, this becomes critical in light of the possible trade-offs between environmental and social and economic goals.

Evaluators must develop improved approaches and methodologies for evaluating in complex situations. They

must be able to deal with both environmental and human/societal systems and their interactions. Evaluation questions must drive the choice of appropriate methods, rather than vice versa, as often is the case in impact evaluation emphasizing experimental designs. Therefore, multiple methods become the norm.

To be truly useful, evaluations must also move beyond assessing whether individual interventions achieve their targets and outputs. It is essential to focus on the big picture and to ascertain whether the policies, strategies and interventions that the international community embarks on make a dent in the areas that they are intended to benefit. In the global environment arena, the challenges are too large to focus on activities and outputs, rather than outcomes and impact.

The SDGs have placed a lot of emphasis on targets and measurable indicators. What evaluators have advocated for is building in evaluation in the SDGs and the 2030 Agenda for Sustainable Development (UNEG, 2015). It is necessary to go beyond monitoring and indicators, and build in evaluation into the SDG processes so that we may better understand what is happening and why; what the causalities are that foster or the barriers that hamper the achievement of the goals. Only rigorous evaluation can provide answers to these questions and help make sure that all countries play their part in addressing the complex challenges pertaining to the planet-wide environment-poverty nexus. Evaluation of the SDGs will, however, be challenging on many levels. First, there are technical constraints pertaining to the evaluability of the goals. Especially given the emphasis on country-led evaluation processes, there are constraints as it pertains to national data systems and evaluation capacities that need to be addressed. Finally, there are challenges related to measuring progress towards the goals that can be politically sensitive.

The evaluation community concerned with the environment-poverty nexus should make an early effort to frame the questions that need to be answered in order for the goals to materialize, and to identify feasible approaches and methods to evaluate them. Equally important is to build in knowledge management so that lessons learned from evaluating real-life experiences can inform the development of future policies, strategies and interventions. Only then can evaluation fulfil its promise to contribute to sustainable development worldwide.

Disclaimer

The views expressed herein are those of the author and do not necessarily reflect the views of the Independent Evaluation Office, Global Environment Facility.

Notes

1. Officially the 21st Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP21/CMP11) held in Paris, France, 30 November–11 December 2015.
2. Status of pledges and contributions made to the Green Climate Fund: http://news.gcfund.org/wp-content/uploads/2015/04/GCF_contributions_2015_june_16.pdf (downloaded on 19 June 2015).
3. http://www.stockholmresilience.org/21/research/research-programmes/planetary-boundaries/planetary-boundaries-data.html (downloaded on 17 June 2015).
4. http://www.un.org/sustainabledevelopment/sustainabledevelopment-goals/.
5. http://www.nec2015.net/article/bangkok-principles-national-evaluation-capacity-sustainable-development-goals-sdg-era (downloaded on 5 January 2016).

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