



Empowerment of Women in a Green Economy in the Context of Sustainable Development and Poverty Eradication

The case for community-based, gender-equitable and human rights-based green economic development

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United Nations Entity for Gender Equality and the Empowerment of Women

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Photos: UN Photo/Kibae Park (A Hmong hill tribe woman at work in Sin Chai, Viet Nam)

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United Nations Entity for Gender Equality
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“American business should be aware that we’re up here saying *this is a race*. It is bad economics; it is bad business not to be among the front runners but to be hesitating. I hope that even more American business people would understand that they need to put the pressure on their politicians.”

Connie Hedegaard, 2011 European Union Commissioner for Climate Action¹ on the green economy race

“At one end of the spectrum, the belief that government ownership is the best way to manage natural resources – forests, for example – has in some cases led to a marked reduction in the resource. At the other end, imposing decentralisation as a remedy without a proper understanding of the local society has triggered ethnic conflict. Social-ecological systems are complex and nested, and resource users around the world vary widely in their preferences and perceptions. Such systems are not amenable to being characterised by simple models.”

Elinor Ostrom, 2009 Nobel Prize Laureate in Economic Sciences²

“It is crucial at this time for the women’s movement to consolidate their knowledge on the ‘how to’ of economic growth, to identify new triggers of economic growth which enable more equitable outcomes, as well as to engage with these new arrangements to ensure that women as labour get a better deal through laws and other structural arrangements.”

Devaki Jain, 2006 Padma Bhushan Award for Social Justice and Women’s Empowerment³

¹ Morales, A. 2011. “China ‘Winning the Green Economy Race,’ UN Climate Chief Says.” 27 January.
www.bloomberg.com/news/2011-01-27/china-winning-the-green-economy-race-un-climate-talks-chief-says.html

² Interview published in IGBP’s Global Change magazine Issue 75, June 2010 Reflections on Governance
<http://www.igbp.net/5.1b8ae20512db692f2a680001895.html>

³ WIDE 2010. In search of economic alternatives for gender and social justice: Voices from India. Edited by Christa Wichterich

Executive Summary

This paper has three sections. The first section cautions against whole-scale acceptance of the current economic institutional order and the prevailing neo-liberal policy framework and applying those principles to the architecture of a green economy. Poverty is by far the greatest violation of human rights, and today's economic institutional order is closely associated with the structural drivers of persistent poverty. It is therefore imperative and urgent that those movements that speak for both disenfranchised people and for disempowered women build understanding and solidarity to fundamentally change the global rules of engagement that disadvantage the poor and make it impossible for them to fend for themselves. This section outlines a sample of current challenges to how the economic system could be designed, regulated and measured around different sets of values and ownership models to benefit poor communities in a green economy. The author encourages the women's movement to build strategic alliances and integrate gender equity issues with this emergent transformative thinking.

The second section identifies, illustrates and discusses three sectors, recognizing that a green economy has implications for women not only across sectors but in both urban and rural settings with a plethora of employment opportunities in labour and technology intensive areas. These sectors are drawn from the United Nations Environment Programme (UNEP) Green Economy Initiative report:⁴ (1) natural capital, emphasizing women's relations with water, fisheries and land use; (2) energy and resource efficiency, including an examination of waste collection with a special emphasis on women waste pickers; and (3) the transition to a global green economy, which includes an analysis of enabling conditions and financial instruments. It also addresses a number of predicaments and ramifications already evident or emerging at the community, local, national, regional and global levels, where the drivers and interests of one green economy can erode or even erase the drivers and outcomes of another green economy. The author emphasizes that communities of citizens, broadly defined, each need their own cognitive framework of green economy values, principles, practices and policies, since these address and respond to intensely local issues. The locally defined framework then needs to be embraced and supported by an overarching public policy environment. This process constitutes a key platform for women's engagement in the management and negotiation of the benefits from the development of the green economy.

Complex challenges create imperatives for change. At the community level these complexities need to be unpacked for women and men to fully grasp what is at stake. The third section continues the discussion by reinforcing the importance of developing women's capacity for change through consolidating social capital, collective agency and community action. It suggests that while economic empowerment in a green economy context will be key, economic empowerment on its own will not translate automatically, or even necessarily, into the kind of action needed for a holistic green economy regime. The community level is the quintessential entry point for investing in women's empowerment in

⁴ UNEP. 2011. "Towards a Green Economy: Pathways to sustainable development and poverty eradication." Nairobi: United Nations Environment Programme.
www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/Green%20EconomyReport_Final_Dec2011.pdf

green economies. If poor communities are the designated beneficiaries of cost-benefit programmes in green economies, to generate revenues from Payment for Ecosystem Services (PES) schemes or access regular compensation payments for water used by industry, then a scaled-down financial support infrastructure is an absolute necessity. The section closes with strategic recommendations focusing on community-level empowerment of women through collective agency, social capital and institutional anchoring of support services and investment.

Purpose and format of study

This study has been commissioned by UN Women as a background paper to enrich the discussion on the empowerment of women in a green economy in the context of sustainable development and poverty alleviation, in advance of the Rio+20 conference in June 2012.

The paper is a first attempt at reframing the green economy debate around consistent evidence that:

- a) Poor women have a profound and immediate stake in the green economy.
- b) Poor people, and poor women in particular, could risk losing out entirely if their priorities are not integrated into the emerging sustainable development model, and this could in turn deepen and further cement existing income and security gaps.
- c) The success and viability of the shift to a sustainable green economy requires the full and equal participation of women at all levels, in all phases and in all sectors.

This paper focuses on the central needs of poor women in communities, who stand to risk the most and to gain the least from the policy reforms and the financial instruments presently being formed in efforts to grow the green economy. It analyses the multiple risks that disempowered women face as a consequence of systemic and systematic inertia in today's politics and business at the local and global levels. The paper makes reference to emerging thinking, alternative practices and illustrative examples, while posing a series of questions (in red italics) that (the author hopes) may serve to guide further discussion on these issues and to reframe the green economy to address real equity issues on behalf of poor women and men.

Key messages

Poverty is understood and recognized as a complex issue with socio-institutional and 'structural' factors generally being more important than pure economic or biological aspects. In other words, it is not nature's intention to create poverty; poverty is a man-made' construct.

The litmus test for a green economy will be whether it takes to heart the perspectives of poor communities, especially the interests, knowledge and priorities of women to establish an equity stake. These are existential issues for women, for there are real perils and risks if the natural resources on which these communities depend are brought into an economic value system that for all intents and purposes dismisses, negates and displaces the value systems and priorities of the poor. Equity is a principle that calls for fairness, inclusion and justice. Equitable policies often require concrete actions and steps beyond simply making everyone 'equal before the law', and accordingly are designed to take appropriate account of historical and contemporary injustices and unequal outcomes. The author

interprets 'gender equity' in the green economy as a commitment to women owning an equity stake in the building process and outcomes of community and national green economy wealth.

The green economy will only be as robust as its weakest link. In a green economy regime, where (a) access to public commons may be further curtailed; (b) state regulation or protection may not extend to the informal sector and (c) non-agricultural and agricultural labour as well as the self-employed and volunteer sectors are growing, it would be counterproductive not to engage with the informal sector – a sector heavily populated by women. Their potential roles in the recovery, restoration and delivery of eco-system services cannot be discounted.

The community level is the quintessential entry point for investing in women's empowerment in green economies. This is true of informal and formal sectors, of rural or urban groups and in developing or developed economies. Because green economy issues are by their very nature highly contextualized and localized, it stands to reason that communities should drive and lead their own development solutions. One of the biggest lessons community groups have learned is that in order to bring about change, there needs to be a collective force, a 'critical mass' of people working together. 'Community solutions' by their very nature require many people looking for solutions, experimenting with different contexts to build scale: scale of options, scale of involvement and scale of confidence. When the interests of poor women and men are at stake, they stand a better chance at negotiating their rights and equity stake if they build solidarity around their assets and vested interests and have direct control over the finances that underwrite their futures. There are a multitude of ways communities can participate in the process of resolving problems of land, housing, livelihood and access to basic services if they are in fact involved from the outset in defining the problems and their solutions. Being the ones who face these problems directly, they not only understand them best but are also most motivated to solve them.

The hard-won gains that the majority of the world's poor women have made in the last few decades in securing their societal, legal and economic rights are under siege by the intensification and deepening of a market-centred framework and mentality. The property and environmental wealth of the weak is exposed and vulnerable to the agenda and incursions of the powerful. In the face of global competition and the power of finance capital, it is reasonable to argue that poor women simply cannot hold on to their green economy assets: land, water, seed and knowledge. In losing these assets they lose their dignity, their self-reliance and the core of their empowerment. Consequently, their communities suffer and the futures of their children are put in jeopardy.

This would undermine a green economy vision for the future.

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I. Conceptual Framework of the Green Economy: Principles and Values

Summary of main concepts, core principles and values

There are (at least) two sides to the green economy coin

On one side of the coin, early indicators – such as the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) framework of the green economy⁵ – suggest that transformational change will not take place in the current over-arching paradigm of ‘economic growth at any cost’. The same economic principles that underpin today’s economic and financial crisis will also be the ones used to get out of the crisis. In the context of today’s globalized debt, what is implied is that the international community may turn its attention to the remaining natural resources, include them into future investment portfolios, and commoditize and monetize them. In other words, the best that can be expected is the *fine-tuning* of the prevailing economic system and its transaction systems while creating new commodities by putting a dollar value on the last bastions of public commons of the biosphere.⁶

The other side of the coin appears more hopeful – that in fact civil society is increasingly taking matters into its own hands by bringing together community, creativity and innovation as well as new principles and values to heal the planet. There are early indicators from the grass roots showing how people and communities, in the face of continuing shaky financial markets, are bringing global challenges down to a (manageable) human scale and coming up with workable and practical solutions. Initial signs of a *systemic change* are becoming visible.

Poor women are not a homogenous group. Some groups of women are so disenfranchised that they no longer have any say in the decisions that affect their lives – they will work within the economic system and seek to be ‘included’ at any price. Other groups of women are standing up to protect their version of green economies, whether through rights to forest and water, to health or to nutritious food or other lifestyle and value choices, despite the increasingly difficult and even tenuous situations that they may find themselves in.⁷

Core values and assumptions need to shift

The time has come to stop asking for *special considerations for women within the existing economic framework* and instead to start engaging both women and men, but especially disempowered women, in developing an entirely new view of what progress and prosperity mean and look like. By pushing to place women in the ‘global value chain’, we may effectively ‘chain’ them to a system that is fundamentally flawed. What is required is a paradigm ‘track-jump’ from Business-As-Usual (BAU):

⁵ UNESCAP. 2011. “Sustainable Development in Asia and the Pacific: Key challenges and opportunities - Green economy in the context of sustainable development and poverty eradication.” Asian and Pacific Regional Preparatory Meeting for the United Nations Conference on Sustainable Development, Seoul, 19–20 October 2011.

⁶ It is particularly important that those speaking on behalf of poor communities, marginalized societies and rural women do not further compromise women’s position in society by falling into the trap of fine-tuning rather than systemic change.

⁷ For example, the Chipko Movement in India where village women stopped commercial logging in the 1970s by embracing trees in their community forests, leading to re-evaluation of the country’s forest policy and a ban by the Supreme Court of India on green felling in the Himalayas.

- away from current entrenched measures of power, wealth, prosperity and well-being at the individual scale (within one lifetime), and at the same time
- towards the cementing of equity and sustainability values at the community scale (for many generations to come).

A parallel shift also needs to take place:

- away from the shareholder economy model – where poorer men and women are not recognized as shareholders and
- towards a stakeholder economy model – where the equity stake in the economy is not about the portion of the profit but about protection and reinvestment for the future.

Defining priorities and parameters

These shifts question certain core assumptions for the workings of future green economies and have implications for low-income households, poor sections of society and especially women in those sectors. Organizations and institutions working on behalf of and with the poor will need to address the following macro governance parameters and priorities – which in sum formulate a green equity⁸ strategy framework:

- Priority 1: Roles and impacts of market mechanisms need to be critically reassessed, reformulated and regulated at the international, national and community levels.
- Priority 2: Roles of state and national institutions towards ensuring securities of water, food, rights and livelihoods for their people/ citizens need strengthening and transparency.
- Priority 3: Innovation and investment strategies need to focus on decentralized local solutions, social capital and social contexts and invest in people.
- Priority 4: At the local level roles need to be determined around who will monitor consolidated international commitments and national policy implementation. It is the people at the local level who will have a vested interest to operationalize, monitor and keep a check on the equity and development impacts of the green economy (not just an international policing system) – women have an important role to play here.

⁸ Equity is a principle that calls for fairness, inclusion and justice. Equitable policies often require concrete actions and steps beyond simply making everyone 'equal before the law', and accordingly are designed to take appropriate account of historical and contemporary injustices and unequal outcomes. The author interprets 'gender equity' in the green economy as a commitment to women owning an equity stake in the building process and outcomes of community and national green economy wealth. See Yen Liu, Y. and Keleher, T. 2009. "Green Equity Toolkit: Standards and strategies for advancing race, gender and economic equity in the green economy." New York: Applied Research Center. www.arc.org/downloads/Green_Toolkit_112009.pdf and Warren, D.B. and Dubb, S. 2010. "Growing a Green Economy for All: From green jobs to green ownership." College Park, MD: The Democracy Collaborative at the University of Maryland. www.community-wealth.org/pdfs/news/recent-articles/07-10/report-warren-dubb.pdf for background reading on an equity stake in a green economy.

Priority 5: At the global level, defining the green economy in an environment, development and equity framework is more likely to meet the interests and priorities of poor communities in low-carbon, climate-friendly and sustainable development models.

The promise of a 'green economy'

The concept of the 'green economy' is complex and the international community has yet to come to a political consensus on its meaning, its use, the ensuing policy implications or what it constitutes. The distinctions between 'green economy', 'green growth',⁹ 'global green new deal' or 'green recovery' are somewhat blurred, as is the distinction between 'qualitative growth' and 'sustainable economy'. While they express similar core objectives, they tend to emphasize different aspects of 'greening' the economy. The term most used in the international community is the 'green economy in the context of sustainable development and poverty eradication'.

The United Nations Environment Programme (UNEP) emphasizes that a balance between the three dimensions of economy, society and environment is essential to achieving equitable and sustainable development. Thus defined, the green economy embodies the concept of sustainability while offering scope to debate the limits to growth – a debate held in both the industrialized and emerging economies.¹⁰ This gives the impression of a socially and environmentally friendly economy, sensitive to the need to restore and conserve natural resources; one that minimizes pollution, emissions and waste that damage the environment in the production process; and one that produces products and services the existence and consumption of which do not harm the environment. By extension, not harming the environment suggests that all living beings would thrive and even, perhaps, flourish. Interpreted in a holistic manner, the green economy offers hope. Yet differing national circumstances and aspirations prompt different responses to 'greening' the economy. The capital- and technology-intensive industrial economies, for instance, focus on the promises of future market and employment opportunities while emerging economies by and large are suspicious of potential (environmentally conditioned) trade barriers and mercantilist interests that might further compromise their own economic agendas.

What does it take to ensure that the promise of a green economy that is holistic and complex is not reduced to mainstream economic orthodoxy and its present-day quarterly performance parameters, or in other words more of the same under a new 'eco-label'?

In past systems' transformations – the adoption of railways, electrification of energy supply or spread of information technology – the growth in each sector was far outstripped by growth in the broader economy. That growth came about because the innovations themselves changed what was possible for economic production. This growth, however, has not automatically addressed growing income inequalities between the rich and poor. How best to position and structure policies, programmes and

⁹ 'Green growth' describes an economic growth strategy based on the ecological restructuring of existing economic processes, creating jobs and income generation opportunities in new 'green' sectors of the economy and minimizing environmental impacts. The concept of green growth is therefore of particular relevance in the development policy debate, as qualitative economic growth and poverty reduction in developing and emerging countries is a key building block of sustainable development.

¹⁰ In this context, the concept of the green economy is distinct from green growth.

projects in a systems' transformation that responds to the promise of 'greening the economy' while at the same time addressing rising inequality and poverty presents real and urgent challenges, particularly as women make up the majority of poor people in the world.

In one report, UNESCAP qualified its own conceptual framework of a green economy and green growth as essentially "the process of greening the conventional economic system"¹¹ and proceeded to clarify: "In the long run a Green Economy may produce better outcomes in terms of poverty reduction, as it will reduce the vulnerability of socio-economic systems to external shock and crises and sustainably manage the natural resources that underpin such systems. In the transition, however, costs and benefits will not be equally distributed, and it is important that specific measures are put in place to counter-balance the potential negative effects on the most vulnerable, especially the poor. While it is true that a Green Economy/ Green Growth does not automatically alleviate poverty in the short run and address equity and inclusiveness, neither does the current conventional economy. Economic growth policies ... need to be complemented by policy measures directly focusing on improving equity and reducing poverty. Policies for greening economic growth cannot be a substitute for sound social policies". In other words the principles and assumptions behind 'growth' will not meet the challenge of growing inequalities.

This is where the interests around equity, equality and women's development need to be clearly established. Social policies and instruments need to be developed to ensure that the green economy not only alleviates poverty and addresses equality as a matter of course, but that the interests of the very

1. SMALL ISLAND DEVELOPING STATES AND THE GLOBAL SOUTH

Small Island Developing States (SIDS) and the Global South in particular have stressed that a green economy should reduce poverty and strengthen resilience. The Preparatory events for the Pacific, for instance, have noted that a green growth transformation requires a socially inclusive approach involving and applying traditional values and systems that support sustainable development and social equity and integrate the informal sector that on average represents 60 per cent of all Pacific island economies.

Source: UNESCAP. 2011, op. cit.

same people who depend on green economy sectors – particularly natural capital – are deliberately safeguarded and protected from the very outset. This is not so much about social welfare or ensuring that women are just clients of a service delivery system, but more about ensuring that women and men are equal players in designing and delivering the system.

As its meaning is still evolving and open to interpretation, there is a window for the women's movement to take the green economy concept beyond the primary mandate of today's market economy and the notion of 'economic growth'. The green economy should be based on three imperatives: (a) the environmental imperative; (b) the development (economic and social) imperative; and (c) the equity principle. Surveyor Efik, Civil

Society Representative in Nigeria's National Inter-Ministerial Committee on Climate Change and National Technical Committee on REDD+¹² puts it this way; "When people consider the green economy,

¹¹ UNESCAP 2011 Conceptual Framework for Green Economy/Green Growth

¹² Reducing Emissions from Deforestation and Forest Degradation (REDD) is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon

they should think about social equity, human well-being and environmental justice ... [a] 'global commons principle' should be applied and the benefits reaped from the green economy shared by all, emphasizing that the green economy is not only about the environment, but about reducing poverty and must be approached with an understanding that those concepts were all interconnected."¹³

In sum, a green transformation will not materialize if all that takes place is a retrofitting of the prevailing economic system to secure the 'green' interests of the powerful few while serving the poor with supplemental social policies. The litmus test of the green economy will be whether it takes to heart the perspectives of poor communities, especially the interests, knowledge and priorities of women, to establish an equity stake. These are existential issues for women, for there are real perils and risks if the natural resources on which these communities depend are brought into an economic value system that for all intents and purposes dismisses, negates and displaces the value systems and priorities of the poor.

Identifying the poor in green economies

The Brundtland Commission report (1987) made the link between poverty and environment, stating that "many parts of the world are caught in a vicious downwards spiral: poor people are forced to overuse environmental resources to survive from day to day, and their impoverishment of their environment further impoverishes them, making their survival more difficult and uncertain". Poverty is now better understood and recognized as a complex issue with socio-institutional and 'structural' factors generally being more important than pure economic or biological aspects. In other words it is not nature's intention to create poverty; poverty is a man-made construct.

The fishing sector provides a perfect illustration. Over-fishing and the potential depletion of fishery resources threaten many coastal livelihoods and small-scale fisheries. Other conditions related to social structures and institutional arrangements play a more central role in engendering poverty by their ways of controlling how and by whom fishery resources can be accessed and used. Critical factors that contribute to poverty in small-scale fishing communities include: insecure rights to both land and fishery resources; energy vulnerability; poor or absent health and educational services; lack of social safety nets; vulnerability to natural disasters and climate change; exclusion from wider development processes; and inadequate representation and participation in decision-making. This is of direct concern to women as more women than men worldwide are employed in the inland fisheries sector when post-harvest activities are included. The bulk of inland fisheries production is consumed locally; it is vital to rural populations for food and nutritional security, cash income and as a safety net for the poor.

Nearly three quarters of the world's poorest citizens are directly dependent on the environment for a significant part of their daily livelihood.¹⁴ More than 1.1 billion people live within the world's biodiversity

paths to sustainable development. 'REDD+' goes beyond deforestation and forest degradation and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.

¹³ Quoted in UN Information Officer's report from the 64th UN DPI (Dept. of Public Information) UNDP. 2011. *Sustainable Societies, Responsible Citizens*, 64th Annual United Nations Department of Public Information/ Non-Governmental Organizations Conference, Bonn, Germany, 3–5 September 2011.

¹⁴ World Resources Institute, UNDP, UNEP and the World Bank. 2008. *World Resources 2008: Roots of resilience – Growing the wealth of the poor*. Washington, DC: World Resources Institute

‘hotspots’, which are home to nearly 60 per cent of the world’s poorest people. In other words, the concentration of population and the fragility of eco-systems go hand in hand. Of the 955 million poor people living in rural areas of developing countries in the mid-1990, an estimated 630 million lived on marginal agricultural forested and arid lands. Some 300 million people live in forested areas and another 200 million live around them, most of them poor. Currently, 146 major cities¹⁵ are located in or directly adjacent to a hotspot – which has implications for the swelling numbers of urban slum dwellings.

Global data from the UN Food and Agriculture Organization (FAO) suggests that of the 4 billion poor and hungry, 50 per cent are smallholder farmers, a majority of them women; 20 per cent are rural landless, 10 per cent depend on herding, fishing and forestry; and the remaining 20 per cent are urban. Agricultural livelihoods are essential for about 2.5 billion people worldwide, providing jobs for approximately 1.3 billion people, of whom most are small-scale land holders or landless.¹⁶ Increasingly, men are moving out of the sector in search of employment in urban or peri-urban areas, contributing to the feminization of small-scale agriculture. Women in agriculture tend to perform unpaid labour tied to household or smallholder production (e.g., tending livestock, grains) and temporary or seasonal work (e.g., in fruit, flowers, tea) and are principally involved as farmers, food gatherers and custodians of medicinal plants – again a key component of future green economies.

Poor women’s vulnerabilities are further accentuated by race, class, ethnicity and age. Even among the poor, women have less access than men to resources that would enhance their capacity to adapt to climate change, including land, credit, agricultural inputs, decision-making bodies, technology and training services. For the vast majority of women working in the informal sector and in small enterprises and lacking capital and access to credit and information, recovering from the devastating effects of environmental disasters is next to impossible.¹⁷

The philosophical and methodological underpinnings of economics

Measuring the economy

At its most basic, economics has been defined as the science of decision-making under constraints. Economists stress the concept of scarcity as the main constraint affecting individual and societal decision-making and choice. Economists build their assumptions around the fact that people will make decisions based on maximizing their own outcomes in self-interested ways and that they make choices based on consistent and rational decisions. Policy-makers in turn use financial incentives (such as taxes or subsidies) to influence (or distort) these decisions – as will be discussed further in the paper.

In reality these ‘rational’ decisions are made with incomplete information, are not always in response to financial incentives and are influenced by a host of socio-cultural factors. The poor and the disempowered are even further removed from access to the information and insights required to make

¹⁵ See www.microfinancegateway.org/gm/document-1.9.24286/27.pdf page 2

¹⁶ World Bank. 2007. *World Development Report 2008: Agriculture for development*. Washington, DC: World Bank.

¹⁷ Gender Action. 2008. “Gender Action Link: Climate change.” www.genderaction.org/images/Gender%20Action%20Link%20-%20Climate%20Change.pdf

these ‘rational’ decisions; they effectively have very little choice or very little say in what choices they have. They are also outside of the reach of financial incentives (particularly in the informal sector).

The international standards used by economists to measure and compare development include gross national product (GNP) or gross domestic product (GDP) and national income, labour productivity and wages.¹⁸ GDP growth created jobs, avoided recessions and thus became the preferred yardstick for progress – but it does not capture many vital aspects of national wealth and well-being such as direct changes in the quality of health and education and changes in the quality and quantity of natural resources. The GDP model has come under increased scrutiny in the wake of the 2008 financial and economic crisis. Both GNP and GDP measurements are criticized for their lack of accounting for environmental degradation and resource depletion. It has been suggested that GNP is as much a measure of resources extracted and consumed and pollution generated as it is of wealth created.¹⁹ One alternative measure, the Green Net National Product, addresses the sustainability and well-being of the planet by taking into account natural capital (see Box 2).

The report “The Measurement of Economic Performance and Social Progress” by Amartya Sen and Joseph Stiglitz took issue with the prevailing “GDP fetishism” in the developed and emerging economies and called for the inclusion of indicators that measured well-being as well as economic, environmental and social sustainability.²⁰ A UNEP/ European Commission report on “The Economics of Ecosystems and Biodiversity” also addressed the inadequacy of national accounting and demanded new approaches to macroeconomic measurement that would include the value of ecosystem services, especially those on which the poor depend.²¹ Annual natural capital losses, the study explains, are typically estimated at an unimpressive few percentage points of GDP. “If, however, the natural stocks upon which the livelihood and welfare of the poor depend are included, then we are talking about fifty percentage points and more; a figure they would find impossible to replace”.²²

2. GREEN NET NATIONAL PRODUCT

Among the alternative accounting measures economists are looking at to supplement the use of GDP is the green net national product. The ‘green’ means that GDP must be reduced to take into account the depletion of natural resources and the degradation of the environment – just as a company must depreciate both its tangible and intangible assets. ‘Net’ national product (NNP) means that there has to be an adjustment for the depreciation of the country’s physical assets.

¹⁸ The environmental activist Bill McKibben called the steam engine and ‘GDP growth’ the two most significant discoveries of the 18th century, for both improved the well-being of a significant part of humanity.

¹⁹ Rifkin, J. 1991. *Biosphere Politics*. New York: Harper Collins.

²⁰ See www.stiglitz-sen-fitoussi.fr/en/index.htm for further information and updates.

²¹ The rural poor are the most vulnerable to loss of natural capital (biodiversity and ecosystem services). Appropriate policies require an understanding of this link and ways to measure the importance of such services to incomes and livelihoods. Measuring the GDP of the poor can clarify current dependence and risks to poverty, development and the MDGs from losses of natural capital.

²² UNEP. 2009. “TEEB –The Economics of Ecosystems and Biodiversity for National and International Policy Makers: Summary – Responding to the value of nature.” <http://www.teebweb.org/LinkClick.aspx?fileticket=I4Y2nqqliCg%3D>; see also: The European Union’s Beyond GDP process, which is piloting an environmental index for use alongside GDP and launching macro indicators to communicate key issues on sustainable development.

Another measure is the Human Development Index (HDI), calculated by the United Nations Development Programme (UNDP), which is referred to as the measurement of human well-being. Launched in 1990 but conceptually applied in various capacities for generations before, the HDI assesses 175 countries on achievements in three basic dimensions: life expectancy, access to knowledge and standard of living. Unlike the GNP and GDP measurements, the HDI shifts the focus of development economics from national income accounting to people-centred policies. UNDP also calculates the Gender Inequality Index (GII),²³ which is the HDI adjusted for gender inequality, and the Inequality-adjusted Human Development Index (IHDI), which accounts for inequalities apparent in a given country across the indicators. The 2010 Human Development Report introduced another measure, the Multi-dimensional Poverty Index (MPI), which includes an increased number of indicators on the overlapping dimensions of poverty. These evaluations indicated a clear trend towards the economy being measured beyond monetized 'growth'.

Ecological footprint measuring tools vary in scope, comprehensiveness and output. The Environmental Vulnerability Index (1999) provides data on 50 indicators that identify a country's level of resilience.²⁴ The Environmental Performance Index (EPI) seeks to advance environmental thinking and policy analysis to enhance and inform decision-making in the public, business, community and personal realms to promote sustainability.²⁵ The EPI considers 10 indicators divided under two main headings: environmental health and ecosystem vitality.²⁶ Neither index disaggregates the data by sex. However, the long-term impacts and effects of environmental changes on humans are experienced differently by sex. The types and frequency of health implications as well as the daily interactions with the environment differ for women and men. If the mandate of the index is to influence and shape decision-making and solutions, it has to factor in that the solutions are fundamentally different for women and men.

The role of the market – cautions for the green economy

Conventional economics places the market as the central 'self-correcting' mechanism for the allocation of resources, goods and services at the individual, family, societal and world level. These include product markets where goods, services and other outputs are sold, factor markets where production inputs are sold, financial markets where financial instruments are traded, and labour markets where women and men sell their time and skills to employers.

The prevailing theory of financial markets holds that they tend towards equilibrium over time and that therefore the pursuit of self-interest should be allowed free rein and markets should be deregulated. George Soros²⁷ among others, however, warns against the false premises of an unregulated financial market that "has served well the interests of the owners and managers of financial capital. The global markets allowed financial capital to move around freely and made it difficult for individual states to tax it or regulate it. Deregulation of financial transactions also served the interests of the managers of

²³ Gender Inequality Index (GII). <http://hdr.undp.org/en/statistics/gii/>

²⁴ www.vulnerabilityindex.net/EVI_2005.htm

²⁵ <http://epi.yale.edu/about>

²⁶ www.epi2010.yale.edu/Metrics

²⁷ Chairman of Soros Fund Management.

financial capital; and the freedom to innovate enhanced the profitability of financial enterprises.”²⁸ In other words, placing more and more of the natural economy into an unregulated finance capital market could be detrimental to both individuals and the state.

Looking beyond the financial markets, what are and where are the markets in a green economy, and how will these markets be organized and regulated – and on whose behalf?

Preparing the green economy for ‘the market of nature’ is essentially about placing a commercial exchange value on nature. Nature, however, is invaluable to poor women and men (and arguably all human beings) on an everyday basis – particularly when this applies to the public commons. The study on “The Economics of Ecosystems and Biodiversity (TEEB)” (Box 3) offers an economic rationale for the valuation of nature, which could run into the billions and trillions of US dollars. An earlier study, “The Value of the World’s Ecosystem Services and Natural Capital”, estimated the total value of the world’s ecosystems at \$33 trillion; twice the global GDP that year.²⁹ The valuation of the world’s ecosystem services is not uniformly welcomed. Critics say it is absurd to allocate a quantifiable measurement to the infinite value of the earth’s unique biosphere and fear this might unleash the second colonization of biodiversity-rich developing countries. In 2008, Achim Steiner³⁰ addressed this valuation question with Africa in mind: “Africa’s wealth of natural resources has always been an asset and has sustained its people during good and hard times. But their true value, the sheer scale of the wealth from Africa’s freshwaters and landscapes to its minerals and marine resources, has been invisible in economic terms.” Using data from the *Africa Environment Outlook*³¹ – which he refers to as a “pre-investment document” and a “shareholder prospectus” – the economic value of the Zambezi River Basin³² alone in terms of crops and agriculture potential is priced at close to \$50 million a year. These wetlands are also economically valued in terms of fisheries, estimated at \$80 million a year. Wetland-dependent eco-tourism in the river basin is valued at more than \$800,000

3. THE ECONOMICS OF ECOSYSTEMS AND BIODIVERSITY (TEEB)

Land and nature is about to take on a new value on the global market, a value that costs out the wealth of its wilderness, measured by its biodiversity. Economists are extending their principles and measuring tapes to eco-services and ecological values. TEEB’s synthesis report, “Mainstreaming the Economics of Nature: A synthesis of the approach, conclusions and recommendations of TEEB” uses three scenarios – a natural ecosystem (forests), a human settlement (city) and a business sector (mining – to illustrate how the economic concepts and tools described in TEEB can help equip society with the means to incorporate the values of nature into decision-making at all levels. The report was launched in October 2010 at the Convention for Biological Diversity in Nagoya, Japan. Its main premise is that the best way to protect biodiversity is to give it an economic valuation.

Source:

www.teebweb.org/TEEBSynthesisReport/tabid/29410/Default.aspx

²⁸ Soros, G. 2008. “The Crisis and What to Do About It.” *The New York Review of Books*, 6 November.
www.georgesoros.com/articles-essays/entry/the_crisis_what_to_do_about_it/

²⁹ Costanza, R. et al. 1997. “The Value of the World’s Ecosystem Services and Natural Capital.” *Nature*, 387: 259.

³⁰ Steiner, A. 2008. “Africa’s Natural Resources Key to Powering Prosperity.” *Environment and Poverty Times*, May.

³¹ See www.africaneconomicoutlook.org/en/

³² The Zambezi River Basin stretches across Malawi and Mozambique and Zambia.

annually, natural products and medicines associated with these wetlands are considered worth over \$2.5 million a year. Steiner goes on to say that “the 21st century is becoming increasingly a biological age: Africa with its natural wealth or ‘nature capital’ residing in its ecosystems ... can be a lead player on this multi-billion dollar stage”³³ Ultimately ensuring that poor women and men are able to capitalize on the value of these resources will be one of the key challenges to achieving an equitable green economy. The ‘transfer’ of value of this ‘shareholder prospectus’ to those who are already losing their ‘fair share’ will need reinforcement – and for this to happen, the ways the markets function will have to be changed.

To emphasize this point, 10 years ago Joseph Stiglitz published a devastating review of economic assumptions where profit motives drove economic decisions. Left to their own workings, without government intervention, market functions inevitably result in market failures and growing income disparities. Stiglitz criticized economic policies such as fiscal austerity, trade liberalization, the liberalization of capital markets and privatization of state assets. Political influence and anti-competitive practices (sustained through politics) have been central to the increase in economic inequality around the world. Unless the relative economic roles of the market and the state are rebalanced, the street protests that took place worldwide in 2010 and 2011 will become more pronounced, with social and political instability eventually harming long-term economic growth and welfare.³⁴ It is unclear if the architects of the green economy paradigm are addressing this as a core issue within the broader framework of green economic development or how much importance is attached to this systemic problem.

Instead, a limited number of public policy instruments are being designed to address ‘market failures’ through regulatory oversight, property rights and financial instruments. Over the last three decades a variety of new policy instruments have been devised that appear to be more flexible and subject to negotiation, involve multi-stakeholder dialogue and are based on market principles of efficiency. One such instrument that is gaining popularity relates to payment for ecosystem services (an assessment of what this might mean for low-income women is presented in section III).

A market for ecosystem services

Alongside the proposed market for biodiversity and nature is a parallel market for labour and services to maintain ecosystems. The term ‘payment for ecosystems services’ (PES) defines an approach to secure and finance the conservation of ecosystem services through contingent contracts/ agreements between the beneficiaries and providers of those services.³⁵

³³ Steiner, op. cit.

³⁴ See also Nouriel Roubini, Professor of Economics at the Stern School of Business and co-author of *Crisis Economics* [?].

³⁵ Payments can be international (IPES) and made in cash, in-kind, preferential credit, lower tax rates, employment, etc. Payments can be substantial and support mainstream biological diversity. The US Government spends more than \$1.7 billion a year in direct payments to farmers for environmental protection. Payments under the Department of Agriculture’s Environmental Quality Incentive Program encourage sustainable use of irrigation, nutrients and fertilizers, integrated pest management and wildlife protection. Similarly, the EU Rural Development Programmes, with a total disbursement of Euro 4.5 billion annually, underwrite agri-environment schemes reaching 36.5 million hectares through 1.9 million contracts with farmers. Bracer, C., Scherr, S., Molnar, A., Sekher, M., Ochieng, B.O. and Sriskanthan, G. 2007. “Organization and Governance

One example is the Clean Development Mechanism (CDM) that operates under the Kyoto Protocol. Carbon sequestration projects, bio-prospecting deals, even entrance fees at national parks have received the PES stamp of approval. Its core premise lies in the use of financial incentives to maintain and restore ecosystem services, and its success is largely contingent on its capacity to engage previously unacknowledged actors (so-called ‘beneficiaries of ecosystem services’) in conservation activities. The PES concept appeals to common economic, business and environmental communities’ recognizing that they each have a stake in conserving the environment.

4. ENVIRONMENTAL SERVICES AND ECO-SYSTEM SERVICES

An **environmental service** is generated when an economic activity in one place, controlled by one economic agent, has positive spill-over effects on consumers or producers, often in other places. The environmental services of good forest management, for example, are usually categorized into watershed protection, biodiversity conservation, atmospheric regulation (including greenhouse gas mitigation) and landscape beauty. The Millennium Ecosystem Assessment defines ecosystems as “a dynamic complex of plant, animal and microorganism communities and the nonliving environment acting as a functional unit”, and **ecosystem services** as “... the benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as regulation of floods, drought, land degradation, and disease; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, spiritual, religious and other nonmaterial benefit” (Chapter 1, Conceptual Framework, p. 27). The relationships between ecosystem stewards, environmental service beneficiaries and intermediaries may be more complex than a simple transaction, with agreements that are not wholly voluntary and payments that are not wholly conditional.

Source: Swallow, B. et al. 2007. “Compensation and Rewards for Environmental Services in the Developing World: Framing pan-tropical analysis and comparison.” Working Paper no. 32, World Agroforestry Centre http://www.fao.org/fileadmin/user_upload/kagera/resource/Swallo-CRES.pdf

For a PES contract to materialize four main conditions must be met. First, the ecosystem service or the ‘product’ must be clearly defined. Second, there must be a buyer able and willing to pay for this product/ ecosystem service to be conserved. Third, there must be a seller or provider, who earns the financial resource or compensation in exchange for maintaining that ecosystem service. Fourth and finally all participants must engage in the process voluntarily.³⁶ The key characteristic of these buyer/seller transactions is their focus on maintaining a flow of a specified ecological ‘service’, the most common being to retain clean water, biodiversity and carbon sequestration capabilities.³⁷ An FAO paper³⁸ suggests that PES programmes might have negative effects on poverty in areas that are marginalized from the global economy while having more positive effects in areas that are well

for Fostering Pro-Poor Compensation for Environmental Services.” CES Scoping Study Issue Paper no. 4/ICRAF Working Paper no. 39. World Agroforestry Centre. www.worldagroforestry.org/downloads/publications/PDFs/wp14961.pdf

³⁶ The Katoomba Group 2011. “Introduction to Payments for Ecosystems Services.” www.forest-trends.org/documents/files/doc_2754.pdf

³⁷ For an example of a PES contract, see Scherr, S.J. and Bennett, M.T. 2011. “Buyer, Regulator and Enabler: The government’s role in ecosystems services markets – international lessons learned for payments for ecological services in the People’s Republic of China.” Manila: Asian Development Bank. <http://beta.adb.org/sites/default/files/buyer-regulator-enabler.pdf>

³⁸ Zilberman, D., Lipper, L. and McCarthy, N. 2006. “When Are Payments for Environmental Services Beneficial to the Poor?” Rome: FAO. <http://ftp.fao.org/docrep/fao/009/ag074e/ag074e00.pdf> (2006)

integrated into the global economy – this has direct implications for rural women who are for the most part active in the informal economy (an issue that will be addressed later in this report). The grand vision of PES is to formalize ecosystem service markets by developing the necessary institutional foundations and governance structures.³⁹ In 2007, it was estimated that annual payments for ecosystem services totalled around \$77 billion worldwide, and these are expected to increase to approximately \$300 billion by 2020.⁴⁰

What proportion of that \$77 billion reached the hands of poor people, what proportion of that sum was managed by poor people and ultimately how much was managed and retained by poor women? In an envisioned \$300 billion PES market, who will be negotiating on behalf of the poor?

Commodifying nature's assets and services: value and ownership

FIGURE 1: SHRINKING EARTH



How to price something that is priceless?

When more and more of the planet's natural assets are valued using a dollar metric, what is at stake? An entire value system is at stake. This is not only because the ability to buy rests with those who have the means but also because the perceived value of the environment is altered from how it can sustain life for generations

to come to what it can 'earn' in a monetary sense on the market today and in the short run.

Taking land as an example, the commercial value of land is still relatively low in many parts of the developing world and today's buyers purchase land in anticipation of large returns in the future. Land becomes a strategic asset to be speculated on as population increases and land supply decreases.⁴¹ The present global market dollar valuation⁴² of resources is poised to both reinforce a trend and further nurture expectations that future value, profit and power lie in the rights to land and fresh water. And according to prevailing principles of free market economics, as products become scarce, prices rise. In view of their available assets, this will price most poor people de facto out of the land market – or, in

³⁹ Such as the 'The Ecosystem Marketplace' – a global market information service for ecosystem services.

www.ecosystemmarketplace.com

⁴⁰ Scherr and Bennett, op. cit.

⁴¹ Head, P.R. 2009. "Vision for the Future of Cities 'in the Ecological Age.'" London: The Alliance for Global Sustainability.

www.cces.ethz.ch/agsam2009/panels/AGSAM2009_keynote_Head.pdf

⁴² More dollar value statistics are available from Roxburgh, C. et al. 2010. *Lions on the Move: The progress and potential of African economies*. Washington, DC: McKinsey Global Institute.

some situations, put people in tremendous debt situations by forcing them to borrow in order to stay in the land market. Field evidence shows that those women whose access to land is dependent on their community status do not even figure in this kind of land market – they have no say in the sale or purchase of land, much less any income revenue from the same.⁴³

In 1991, Jeremy Rifkin observed “As nation after nation has moved to enclose the land commons, traditional pastureland and subsistence agricultural practices have given way to the raising of commercial livestock and cash crops for export markets. The commodification of lands and resources and the rush for profits has destabilized traditional rural communities and overtaxed the carrying capacity of the soil.”⁴⁴ Rifkin’s observations coincided with the appropriation of the ‘language of the commons’ by the World Bank and the United Nations. Under the guise of protecting biodiversity and conserving the global commons, the World Bank oversaw the turning of rain forests into ecological reserves and lent its support to the expelling of populations that for centuries had drawn their sustenance from them, while ensuring ready access to those who could pay for the privilege of eco-tourism’s voyeuristic pastime. Similarly, the United Nations was instrumental in revising the Convention on the Law of the Sea (UNCLOS), which defines the rights and responsibilities of nations in their use of the world’s oceans.⁴⁵

The ‘equity challenge’ for the evolving green economy is to make sure that policies are put in place that ensure that poor people do not become ‘squatters’ on their ancestral lands and ‘stealers’ from their common heritage.

Emerging solutions and new organizational thinking around ‘ownership’

The answers to these and other challenges could foster radical new solutions or see the reappraisal of traditional systems – which could have positive implications for poor women. One such example is provided by the Nobel laureate Elinor Ostrom, who gained prominence for bringing economics, political science and sociology together. Focusing on water resources, Ostrom looked at the management of fish stocks, pastures, woods and groundwater basins and, in the process, provided compelling evidence that a third form of property,⁴⁶ neither privately owned nor state controlled, is based on common ownership. Ostrom argued that economic activity is not merely split between the alternatives of market and state but may be regulated by collective social activity.

⁴³ Tandon, N. 2010. “New Agri-business Investments Mean Wholesale Sell out for Women Farmers.” *Gender and Development* 18 (3). <http://policy-practice.oxfam.org.uk/publications/new-agribusiness-investments-mean-wholesale-sell-out-for-women-farmers-131748>

⁴⁴ Rifkin, J. 1991. *Biosphere Politics: A new consciousness for a new century*. New York: Crown.

⁴⁵ The United Nations Convention on the Law of the Sea (UNCLOS), also called the Law of the Sea Convention or the Law of the Sea treaty, is the international agreement that resulted from the third United Nations Conference on the Law of the Sea (UNCLOS III), which took place from 1973 through 1982. The law establishes guidelines for the management of marine natural resources and governs access to the oceans in ways that enables governments to concentrate the use of seawaters in fewer hands, ostensibly in the name of preserving the common heritage of mankind. It is this ever-quickenning trend in the commodification not just of land but now also of nature and water – which have both essential and existential environmental, social and survival functions – that is cause for grave concern.

⁴⁶ Property rights encompass the rights to use, own, rent or sell land, its resources and benefit flow; they thus determine how these are used. Their fair distribution is essential from an equity perspective.

She introduced the term common pool regimes (CPR) to categorize such forms of property. Her findings documented that collective community ownership of resources by rural communities may foster the evolution and adaptation of sustainable resource systems (or regimes); and along with clear rights and functioning policies for public goods and the commons, fostering collective rights to common property supports the securing of the future provision of ecosystem services. Ostrom has challenged the established assumption that common property is poorly managed unless regulated by government or privatized and shows how individuals may work together and form collectives that protect the resource

5. COMMUNAL FOREST LAND TITLES – LAOS

In 2011, Lao People's Democratic Republic broke new ground by issuing its first communal forest land titles on a non-governmental development project site. Over the last centuries, tenure over forest land and resources has largely rested with the state. Community access was routinely prohibited or restricted to minimal subsistence use of lesser-value products by colonial and post-colonial regimes. The last decades have seen a movement towards promoting greater community rights over and benefits from forest land and resources in an effort to enhance the socio-economic conditions of rural communities. Clear and secure tenure over forest land and resources is one of the main pre-requisites for the implementation of the international REDD+ proposal to mitigate climate change by reducing ongoing deforestation and forest degradation.

In Lao People's Democratic Republic, land and natural resources are considered common property of the national community, with the Government in charge of allocating land to the private sector, communities and other actors. At this point, forest land allocation has largely been limited to leases and concessions for plantation development to private enterprises. Communal land titles have not been issued due to various reasons, one being the lack of a detailed technical concept. The country has now issued its first communal forest land titles in a development project site in the Sangthong District, and a government policy is in place to ensure that the communal land rights holders will not be taxed for the forest areas under their (communal) management. The resources generated are to be dedicated for the enhancement of the community's welfare and the proceeds designated for a village development fund for village use. It remains to be seen if the village women will have a say in how these development funds are allocated.

Source: Chokkalingam, U. 2011. "Laos Issues Its First Communal Land Titles: National workshop discusses lessons learned." www.forestcarbonasia.org/articles/laos-issues-its-first-communal-forest-land-titles-national-workshop/

at hand.

This way of thinking sits at the heart of the way pastoralists and rural women might measure the value of natural capital – where the idea of private ownership of part of all of an ecosystem runs counter to communal access to the biosphere (see Box 5).

Now more than ever, poor women and men must claim their rights of access to natural capital – which is essentially priceless – within the framework and cultural context of common property, community rights and community responsibilities.

Of economics, ecology and ethics – a triple helix

At risk of oversimplifying, most issues that people care about fall into a tripartite of values: economical, ecological and ethical. Economic values include questions of current and anticipated monetized value of

assets, opportunity costs of owning assets and their value. Ecological values include the protection or depletion of land, water and biodiversity sources and the long-term health and wealth of the planet. Ethical values encompass the present as well as the distant future. They include age-old concerns about what is right for the common public good and the commons, human rights, gender equality and such emerging issues as the science of genetic research, the role of and rules for public oversight to protect the rights of the marginalized and the tensions between growing food or fuel.

In today's world, the ecological and the ethical have been overshadowed by the overwhelming dynamics of the market economy's production, revenue and profit-generating might. As long as these drivers and the comparative 'success' of nations' development prospects are measured and 'valued' primarily in GDP/GNP terms, this trend is bound to accelerate.⁴⁷ E.F. Schumacher wrote: "...with increasing affluence, economics has moved into the very centre of public concern, and economic performance, economic growth, economic expansion and so forth have become the abiding interest, if not the obsession, of all modern societies."⁴⁸ John Keynes supports Schumacher's assertion when he advises against "overestimating the importance of the economic problem, or sacrifice to its supposed necessities other matters of greater and more permanent significance." Some have suggested that economics is less about 'increased growth' and more about 'increased borrowing' – from each other and from the environment. In light of these expressed concerns by economists and social scientists alike, caution is called for when applying outright economic principles to the management and stewardship of the planet's natural assets.

6. DEFINITION OF SOCIAL CAPITAL

Social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them. Social capital can furnish women with a degree of power that enables them to challenge the status quo, through solidarity social networks. Franklin suggests that the transformative potential of social capital is developed through collective experience

Source: Franklin, Jane [ua] 2005, Women and Social Capital, Families & Social Capital ESRC Research Group Working Paper No. 12 and Putnam (2000) at www.oecd.org/dataoecd/25/6/1825848.pdf

Bolivia's Act of the Rights of Mother Earth⁴⁹ is a modern day attempt to construct an alternative triple helix of 'greening' the agenda of the future of civilization. The Universal Declaration of the Rights of Mother Earth adopted by the World People's Conference on Climate Change and the Rights of Mother

⁴⁷ The zero draft Outcome Document of Rio+20 (i.e., the basis for Member States' negotiations) reads: "We also recognize the limitations of GDP as a measure of well-being. We agree to further develop and strengthen indicators complementing GDP that integrate economic, social and environmental dimensions in a balanced manner. We request the Secretary-General to establish a process in consultation with the UN system and other relevant organizations."

⁴⁸ Schumacher, E.F. 1973. *Small is Beautiful: A study of economics as if people mattered*. New York: Harper and Row.

⁴⁹ The 2009 Bolivian Constitution recognizes the rights of indigenous peoples to their original communal lands, guaranteeing the use and improvement of sustainable natural resources. It is in line with an alternative vision of development (Vivir Bien) that seeks the spiritual and collective well-being of people as well as greater harmony with nature. For further discussion of Bolivia's Act of the Rights of Mother Earth, see UNDP. 2010. *Human Development Report 2010: The real wealth of nations – Pathways to human development*. New York: Palgrave Macmillan; see also: http://f.cl.ly/items/212y0r1R0W2k2F1M021G/Mother_Earth_Law.pdf and <http://therightsofnature.org/universal-declaration>.

Earth⁵⁰ also recognizes that the capitalist system has caused great destruction, degradation and disruption of Mother Earth, putting life as we know it today at risk.

Why social capital and the care economy are central to the green economy

Social capital and a robust care economy are pre-conditions for the sustainable management of resources. These two concepts are also key to understanding the central roles that women play (a) in social interactions in their communities through networking with and building solidarity and consciousness among each other; and (b) the work performed, usually in the domestic sphere that keeps the labour force fed and clothed. Women also raise the future labour force, care for the weak and vulnerable and ensure that society operates effectively.⁵¹

The care economy is as complex as the market economy, and access to care services (the care regime) provided by the state or market is a crucial component of gender equality. If the care economy sputters, it will have serious consequences for both society and its productivity as it is losing its most important resource and value generator – people.⁵²

Alternative models for advancing green economies

The carbon market, one of the fastest growing financial markets in recent years and one of the strategies to mitigate the anthropogenic impacts on climate change, arguably does no more than shuffle the responsibility around the globe via the trading of carbon credits. Carbon offsetting is one form of carbon trading. Instead of cutting emissions at the source, the polluter finances other ‘emissions-saving projects’. The CDM is the largest regulator of carbon offsetting projects; CDM projects are largely based on technological solutions. The catch: although offsets are often presented as emissions reductions, they do not reduce emissions.

An alternative methodology – Social Carbon – has been developed to push for real sustainability from carbon offsetting projects; it presents an attempt to integrate social and ecological measures into the standard carbon sequestering or offsetting projects or models. A forest conservation project review in northern Brazil noted that the its exclusive focus on carbon reduction meant that the social and environmental aspects were ignored. The Social Carbon Methodology is being applied to carbon offsetting projects as a conceptual framework that combines resources, perspectives and strategies. The methodology is based on the sustainable livelihoods approach and considers six basic resources: Social,

⁵⁰ It calls for action to (among other things): respect, protect, conserve and, where necessary, restore the integrity of the vital ecological cycles, processes and balances of Mother Earth; establish precautionary and restrictive measures to prevent human activities from causing species extinction, the destruction of ecosystems or the disruption of ecological cycles; and promote economic systems that are in harmony with Mother Earth and in accordance with the rights recognized in this Declaration.

⁵¹ ‘Unpaid care work’ is both personal and health care and care-related activities (e.g., fetching water and firewood, cooking, cleaning and washing clothes). See also UNDP. 2009. “Unpaid Care Work.” Policy Brief, Gender Equality and Poverty Reduction Series, Issue 01. Available at: <http://content.undp.org/go/newsroom/publications/womens-empowerment/policybrief-100201.en>

⁵² UNDP. n.d. “Women’s Empowerment.” www.undp.org/women/CD-Gender-and-Budgets-2004/3.1-care.htm Both these concepts (social capital and the care economy) essentially capture the ‘values’ of human investment and activity in the economy.

Human, Financial, Natural, Biodiversity and Carbon. Certification is granted to projects that demonstrate continual improvement through the application of the Social Carbon sustainability hexagon.⁵³

Social Carbon suggests a shift away from a 'business-as-usual' approach to ensure sustainability in the development of the green economy. By implementing this methodology, South Pole Carbon Asset Management Ltd., for instance, expanded micro-hydropower carbon offsetting projects to include education and infrastructure investment. The revenue generated from the project will be reinvested in community composting toilets and in agricultural education programmes for adults. All investments will be implemented and monitored in cooperation with a local non-governmental organization on a long-term basis – a valuable and integral role to be played by civil society organizations.⁵⁴

7. MALNUTRITION LEVELS: AN INDICATOR OF DISENGAGED FARMERS – ZAMBIA

While farmers might still live on the land, they may no longer have a say in its short-term production or in the long-term health and regeneration of natural resources as so many of these decisions are taken in the corporate boardrooms of agro-industry looking to promote exports of 'high value' commodities. When these kinds of decisions are taken away from farmers, you create farmers who are emotionally divorced from the care of the land (as opposed to the engaged passion of stewardship). Disengaged farmers become disempowered labourers. The most immediate and visible outcome when farmers are no longer growing for their own communities but are growing primarily for an export market is that local nutrition levels drop. In Zambia, for instance, half of Zambian children under five are malnourished, over a quarter are underweight and half are stunted. Between 1991 and 2002/03 the proportion of stunted children increased from 40 to 49 per cent. Low birth weight is also an indicator of poor maternal nutrition before and during pregnancy – over 10 per cent of children born in Zambia have a low birth weight while around the same percentage of Zambian mothers of children under three years are malnourished.

Sources: Danish Church Aid. 2011. "Zambia: Food security programme document, January 2006-December 2010." Lusaka: DanChurch Aid; del Ninno, C., Dorosh, P. and Subbarao, K. 2005. "Food Aid and Food Security in the Short and Long Run: Country experience from Asia and sub-Saharan Africa", Social Protection Discussion Paper. Washington, DC: World Bank.

Another standard, the Climate, Community & Biodiversity (CCB) Standards, was designed to ensure robust project design and community and biodiversity benefits. Like Social Carbon, it does not verify quantified carbon offsets; CCB Standards projects must generate positive impacts on the social and economic well-being of communities. Stakeholder involvement is required and must be documented during all phases of project development.⁵⁵

The size of and the potential for growth in the carbon offsetting market that includes the use of methodologies such as Social Carbon is promising despite the absence of a comprehensive global climate change agreement. And while carbon offsetting may not be the catch-all system for carbon emissions reduction, with the development of grass-roots standards like Social Carbon and the CCB

⁵³ Ecologica Institute. 2011. "Social Carbon version 4.2." Palmas, Brazil: EI.

www.socialcarbon.org/uploadDocs/SOCIALCARBON_STANDARD_v.4.2.pdf

⁵⁴ South Pole. 2010. "South Pole Brings the Social Carbon Standard onto the Global Stage." Press Release, 28 October.

www.southpolecarbon.com/downloads/PR101029_SocialCarbon.pdf

⁵⁵ See: www.co2offsetresearch.org/policy/CCBS.html

Standards opportunities exist for sustainable green growth that is driven by stakeholders with a focus on the economy's social and environmental impacts on development. These stakeholders should include poor women and men.

Business-as-usual – changing the conversation at all levels

The UN Secretary-General has urged leaders to abandon 'business-as-usual' in favour of massive investment of public and private funds in 'sustainable development'. UNEP's *Green Economy report* details how this investment could reduce the human ecological footprint by 50 per cent by 2050, develop renewable energy sources, generate employment and help to eliminate world poverty.⁵⁶

These material investments have to go hand in hand with renewed and comprehensive investments in those sectors where women play an underpinning role. This will require in turn a substantive and comprehensive *recalibration* of the nature and modus operandi of these investments and an understanding of *what* the 'return on investment' will be, who will benefit from the investment ultimately, how the terms of investment will be determined and by whom. For business-as-usual to be effectively abandoned, it will not suffice to put a dollar value against priceless global public goods (air, water, soils, forests) nor to make a business case for investing in nature's 'commodities'. And it will not be enough to extend the 'shareholder rights' of these investments to the original inhabitants of those commons. There is a real risk that promised 'easy wins' in a green economy could contribute to further consolidate a system that rewards the few at the expense of the many while the poor, and especially disempowered and disenfranchised women, will lose out entirely.

⁵⁶ UNEP. 2011. "Towards a Green Economy," op. cit.

II. A Stake in Green Economies: Women's Vested Interests

Preamble – what this section covers

Green economy policies and processes could have tremendous benefits both for the planet and in moving the equality bar upwards. What will it take to ensure that 'brown economy'⁵⁷ realities that poor women face do not become even more acute, more perilous and more entrenched in a green economy regime? How can women and men be engaged equally in the shift from brown to green economies? How can poor women be compensated, monetarily or otherwise, for their management of natural capital and the planet's biosphere? How can we move beyond 'compensation' to an integrated equity stake in the green economy for all? We may not have all the answers at hand, but identifying the right set of questions to guide the emerging discourse will be an important first step. There is a strong case for investing in women and for drawing from lessons and impacts of economic policy and financial instruments on poor communities. In the connected globalized world, hitherto ignored communities can be engaged in articulating their own priorities, their own solutions to define and take ownership of the issue.

This section focuses on select sectors categorized under the UN's Green Economy Initiative⁵⁸ (the centrepiece of the 2012 UN Conference on Sustainable Development) as:

- Natural capital⁵⁹ – which includes agriculture, forests, fisheries and water;
- Energy and resource efficiency – which includes waste, renewable energy, buildings and tourism;
- Transition to a global green economy – which includes enabling conditions and financial instruments.

A fourth category, not mentioned in the UN Initiative but especially critical for poor women in both urban and rural sectors, is the informal sector or informal economy. For illustrative purposes this is examined here through the lens of waste and women's roles as waste pickers. While economic (technical) instruments are analysed and referred to, the section places as much importance on political economy (social) contexts at the domestic and global levels.

⁵⁷ The conventional 'brown economy' is characterized by a post-Industrial Revolution model where profits are routinely permitted to be derived from the pollution of air, water and land; the exploitation and under-compensation of workers; the creation of environmental-related illnesses; and the creation of wealth stratification and deep poverty. Other features include misleading market prices that do not properly cover all the costs and risks, hidden market incentives, opaque transactions, inadequate accounting of assets and a perverse social compass that has allowed massive inter-generational debts to accumulate.

⁵⁸ UNEP. 2011. "Towards a Green Economy," op. cit.

⁵⁹ UNEP's "Towards a Green Economy" (ibid.) states that "natural assets such as forests, lakes, wetlands and river basins are essential components of natural capital at an ecosystem level". These underlying ecosystems provide services and values in the diversity and abundance of species and variability and population of genes that can be used for different services and products.

8. A NOTE ON WOMEN'S EMPOWERMENT

Empowerment is the process of enabling people to be actors in their own solutions to their issues. Women's empowerment is about increasing their ability to take control over the decisions that affect their lives. This includes access to and control over information, resources, decision-making and the distribution of benefits.

Despite some greater appreciation of the multi-causal nature of social change, an assumption that underlies much policy thinking is that economic growth is the principal motor of change in gender relations. This is only partly true. While social transformations that have impacted on women's lives can be associated with economic development, they are not simply a by-product of economic growth. Some countries with similar per capita incomes such as Sweden and the Gulf States of Kuwait, Qatar and Saudi Arabia – show marked disparities in women's rights and status.

Investing in natural capital: thematic assessment of water and water management

"A Green Economy is inclusive – that means all, irrespective of class count. All have a voice. All have a right to be heard. That includes the environment that also has a right to water (How much water does a river need?) No one owns it and we all have a right to it. I believe if we can use water as an example – then other resources will follow."

– Interview with Monique Dube, 2011 YWCA Woman of Distinction, 2011 Canadian Geographic Scientist of the Year

Much of the current discourse is about the energy sector; one could even argue that 'clean' energy is the dominant impetus for greening the economy.⁶⁰ This may be because it is presumed that reliable and massive sources of energy are needed to underpin the continued pace of economic growth. Furthermore, investment and innovation in alternative efficiency technologies are an attractive (profitable) investment (and manufacturing) proposition. Investors anticipate positive returns on investments from clean technologies. The 'clean-tech' export market around high-technology competitiveness is ramping up. In some senses, the green economy discussion is lopsidedly energy-centric. **While there is no question that energy concerns are very important to women, the issue that rural and urban women alike prioritize is water.**

The biopolitics of water

The biopolitics⁶¹ of water is complex and uneven. It is complex because life depends on water and there is no substitute for water.⁶² It is uneven because access to water often reflects socioeconomic

⁶⁰ CleanEdge reported \$188.1 billion in global revenue for biofuels, solar and wind energy in 2010, a 35.2 per cent surge over 2009. Bloomberg New Energy Finance (BNEF) found that clean energy investment worldwide reached \$243 billion in 2010, nearly double the sector investment just four years earlier. Venture capital investment for clean technology in the United States rose 54 per cent in the first quarter of 2011 compared with the same period one year earlier, in a trend led by solar energy companies, according to Ernst & Young. See Wood, E. 2011. "Post-stimulus Financing: Will renewable growth continue?" www.renewableenergyworld.com/rea/news/article/2011/08/post-stimulus-financing-will-renewable-growth-continue

⁶¹ The biopolitics of water is about the location (supply) of water, the ownership of (control over) water and access (rights) to water – and the implications of these relationships with water on life as a whole.

⁶² In 2010, the UN General Assembly recognized the right to water and sanitation and acknowledged that clean drinking water and improved sanitation are integral to the realization of all human rights. Access to potable water is considered an equal right, regardless of ability to pay. Right-to-water legislation currently exists in 15 countries in Latin America, 13 countries in sub-

inequalities, including land ownership. Rural communities in particular are routinely exposed to severe water shortages because they are prevented from accessing the river system used to supply cities. It is the political economy of a region and the biopolitics of water that define who gets water, how much and at what price.

The world over, the increased degradation of ecosystems, excessive consumption of water, contamination and salinization of water-bearings, aquifers and dams, along with the impact of extreme poverty have been worsened by the privatization of water utilities.⁶³ This has had profound effects on the availability of drinking water, constituting a violation of the right to life, safety, food and health of millions of people. Climate change compounds the complexity and costs of ensuring water security, particularly in countries and regions with 'difficult' hydrologic legacies.⁶⁴ The World Commission on Water estimates that water use will increase by about 50 per cent in the next 30 years. An estimated 4 billion people (more than half the planet) will at that time live under conditions of severe water stress,⁶⁵ with conditions especially acute in parts of Africa, the Middle East and Asia. Compounding the relative scarcity of water⁶⁶ is the steady deterioration in water quality in most transition and developing economies. UNDP's Human Development Report 2006 reports that inequalities based on wealth and location play a major role in shaping water markets.⁶⁷ The poor who pay the highest price for water systems are the most vulnerable in a water crisis.

Water makes up one of the three largest industries in the world (alongside oil and gas, and electricity). Investor deals in infrastructure, including water and sanitation systems, amounted to \$145 billion in 2006.⁶⁸ According to Summit Global Management, Inc., in 2007 water utilities or water industrials were comprised of at least 400 public companies with a combined market capitalization of almost \$1 trillion,⁶⁹ and the global market for their products and services grosses approximately \$500 billion per year. Those with the capital and the means regard the water sector as a profitable investment opportunity and will

Saharan Africa, 4 countries in South Asia, 2 countries in East Asia and the Pacific, and 2 countries in the Arab region; see UNDP. 2011. *Human Development Report: Sustainability and equity – A better future for all*. New York: Palgrave Macmillan, p. 71.

⁶³ In Bolivia, Ghana and Nigeria, grass-roots movements are successfully reversing the two-decade trend of selling key public utilities to global firms.

⁶⁴ 'Difficult' hydrologies are those of absolute water scarcity and, at the other extreme, low-lying lands where there is severe flood risk. They also encompass areas with markedly seasonal rainfalls – with short seasons of torrential rains followed by a long dry seasons requiring the storage of water. With increasingly difficult hydrology, water security and the level of infrastructure and institutional investment become significantly greater than in more temperate and less variable climates.

⁶⁵ Water stress results from an imbalance between water use and water resources. It causes and is caused by deterioration of fresh water resources in terms of quantity (aquifer over-exploitation, dry rivers, etc.) and quality (organic matter pollution, saline intrusion, eutrophication, etc.)

⁶⁶ Water scarcity is defined not by whether one has enough to drink but whether one has enough water to grow food.

⁶⁷ UNDP. 2006. *Human Development Report 2006: Beyond Scarcity – Power, poverty and global water crisis*. New York: Palgrave Macmillan.

⁶⁸ Saigol, L. 2006. "Infrastructure Deals Soar to \$145 Billion." Water Industry News.

<http://waterindustry.org/New%20Projects/investment.-7.htm>

⁶⁹ Summit Global Management, Inc. 2007. "Introduction to Water Investing 2008." San Diego, CA: Summit Global Management, Inc. www.summitglobal.com/acrobat_pdf/SummitIntroWaterInvesting2008.pdf, p.2.

continue to prescribe market remedies and privatization solutions for water scarcity into the next millennium.⁷⁰

The two sectors in the world that use the most water are chemical intensive agriculture and fossil fuel-based energy production. Water is required for the extraction, mining, processing, refining and residue disposal of fossil fuels and for growing biofuels.⁷¹ Irrigated agriculture accounts for almost 70 per cent of world water withdrawals and close to 90 per cent of the total consumptive water use (the portion that is lost to the immediate environment for use).⁷² More efficient and effective water management for agriculture⁷³ as a way to cope with climate-related water-stress, particularly in rain-fed agriculture, is a top priority agenda item for all stakeholders.

Water is the first green economy issue for women

Water is often identified as a priority by rural women's organizations – whether in a *panchayat* in India, a *jamoat* in Tajikistan or a pastoral group in United Republic of Tanzania, members invariably identify water as the root problem to many other related issues. Women use vegetation and forests for medicinal plants, food, fuel and income generation but these ecosystems depend on a healthy water supply. As the environment deteriorates, women's livelihoods become increasingly risky.⁷⁴ Food and water security⁷⁵ go hand in hand. Without water women cannot process food, much less grow it.⁷⁶

Whether it is from springs or wells or public pumps, whether it is carried by donkeys with plastic canisters or on foot with metal pails or pots, the collection of water for day-to-day use is almost always done by women and girls, sometimes by young boys. The immediacy of water stress is first and foremost a challenge for women, though their responsibilities for water allocation and management are limited to the household in most rural communities around the world. Women know the location, reliability and quality of local water resources. They collect water, store it and control the use and sanitation of it. They recycle water, using grey water for washing and irrigation and the runoff from these for livestock. Women make multiple and maximum use of water sources. However, given their multiple and competing needs, as well as time and resource constraints, women often cannot avoid contaminating water supplies. As water sources become contaminated from humans, animals or agricultural runoff, or

⁷⁰ Dutch Rabobank Group's Rabo Farm Europe Fund, a private equity fund whose sector breakdown is rural resources including land and related assets, regards the water sector as an important investment niche. Rabobank Group is also as co-founder (with, for example, the Swiss Sarasin Bank, whose major shareholder is Rabobank) of AgriStar Fund, a mutual fund that has the "monetisation of water" as one of its long-term investment targets.

⁷¹ Biofuels are substantially more water intensive than fossil fuels, requiring about 10.000–15.000 litres per GJ of energy (almost all of their water demand is for further processing). Oil and gas production require about 1–10 litres of water per GJ of energy and tars sands/oil sands about 100–1.000 litres.

⁷² IPCC. 2007. *Climate Change 2007: Impacts, adaptation and vulnerability: Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Parry, M.L., Canziani, O.F., Palutikof, J.P., van der Linden, J. and Hanson, C.E. (eds.). Cambridge, UK: Cambridge University Press, pp. 173–210.

⁷³ According to the UNDP Human Development Report 2011 (op. cit.), p. 71, farmers in the United States "use 15 per cent less water now than 30 years ago to grow 70 per cent more food; the country has doubled its water productivity since 1980".

⁷⁴ Women's Environmental and Development Organization (WEDO). "Untapped Connections: Gender, water and poverty." New York: WEDO. www.unwater.org/downloads/untapped_eng.pdf

⁷⁵ Water security is the reliable availability of an acceptable quantity and quality of water for production, livelihoods and health.

⁷⁶ As a rule of thumb, it takes on average about one litre of water to produce one calorie of food energy.

as drought increases or water sources deteriorate due to watershed mismanagement, women and children must walk longer distances to secure water.⁷⁷

To successfully manage and distribute water at the community level, women need to be directly engaged in the planning and management of water from the point of its origin: from the aquifers, springs, borewells, watersheds and natural reservoirs. The FAO acknowledges the “exclusion of women from the planning of water supply and sanitation schemes as a major cause of their high rate of failure”.⁷⁸ Further research will be needed to consider green economy options for women – guided by such questions as:

In the market context of eco-system payments, how likely is it that women will be able to negotiate their rights over meagre water needs and be reimbursed for water sources that have already been compromised?

What policy instruments might offer transfer payments to women to care for and manage local water sources and how can the paradigm of water management be changed to empower women to directly manage and conserve their water sources?

In a world dominated by finance capital and centralized high-technology solutions, how can green economic systems ensure that real water needs are not compromised by speculative profit motives and geo-political selling and buying of water?

Does a green economy regime rule out high-risk systems such as large dam infrastructure? Will green economics reimburse communities for the value of water that is drawn away from their communities for urban use or for export crops?

Women’s vested interests in managing water – how this applies to the green economy

Table I provides a matrix of women’s main water interests. Research from rural India suggests that understanding contextual water allocation issues while drawing on the local inputs and insights of those who use and manage water, their daily experiences and range of strategies for claiming and obtaining water, as well as the rights of women for defending their access to water is critical. It recommends that the state take ownership of all the country’s water – both surface and underground – and extend user rights to individuals for the first 200–300 litres of their daily needs. An all-woman committee could be made responsible for the monitoring and allocation of water, as women are more likely to accord the highest priority to domestic usage. Women need to be centrally positioned in the management and monitoring of water in their communities. There are exemplary initiatives in the field (e.g., Barefoot College in India) that have successfully involved communities in harnessing and efficiently managing their water sources.

These initiatives resonate with the recommendations put forward by a seasoned water engineer in central Asia who emphasized the roles women play as managers of water: “Women want access to clean

⁷⁷ FAO. n.d. “Water and Water Resources.” Women in Development Service, FAO Women and Population Division. <http://www.fao.org/sd/fsdirect/fbdirect/FSP003.htm>

⁷⁸ Ibid.

water. They have a vested interest in protecting water against pollution. Since Soviet Union times their ‘traditional monitoring role’ has been replaced by machines, pumps, pipes and other technical devices. There needs to be national support for a village-by-village approach that works with a women’s water committee to identify alternate natural water sources, nurturing and protecting these water sources through a combination of eco-management, local governance and communal trust. Rural women representatives could be trained and made responsible for water affairs at the *Jamoat* level, to save and protect water for the wellbeing of all members of the community. Gravity irrigation, rainwater harvesting, protection of water catchment areas, conversion of mudslide areas into small dams – these are part of a range of small-scale mitigation projects that could source local water such as springs, seasonal ponds, groundwater, derivation of smaller streams and the harvesting of water from snow and episodic rainfall. Establishing these decentralized ‘small scale solutions’ would address water scarcity at the community level while empowering women to maintain their water security.”⁷⁹

As an example, farming methods can be improved by capturing water in soils. In Malawi, women farmer groups have been shifting away from ‘row’ planting of single crops to ‘pothole’ planting with mixed crop placement as they noticed the positive harvest yields as moisture is retained in soils and as taller maize crops provide shade to vegetables. Permaculture and organic farming methods are gaining ground from Zimbabwe to the Caribbean islands. These are labour-intensive (as opposed to capital-intensive) farming methods that respond to the needs of healthy eco-systems. Recommendations from the Comprehensive Assessment of Water Management in Agriculture⁸⁰ include:

- fighting poverty by improving access to water and its use: take bold action to empower people to use water better; ensure the right to secure access; improve governance of water resources; support the diversification of livelihoods;
- upgrading rain-fed systems (about 70 per cent of the world’s poor live in such areas): establishing better management of rainwater, soil moisture and supplemental irrigation is key to (a) cut yield losses from dry spells, (b) give farmers the security to invest in improved agricultural technologies and (c) allow farmers to grow higher value market crops;
- adapting yesterday’s irrigation to tomorrow’s needs: times have changed; the era of funding large irrigation projects is over; manage groundwater sustainably; above all change the governance of irrigation;
- dealing with trade-offs and make difficult choices: water storage for agriculture vs. for the environment; reallocation vs. over-allocation; upstream vs. downstream; equity vs. productivity; this generation vs. the next generation.

These provide an illustration of how green economy initiatives need to integrate the empowerment of women with natural capital development and management of finite resources, through:

⁷⁹ Conversation with Prof. Frank Schrader, Trans-boundary Water Management in Central Asia, GIZ, 5 February 2011.

⁸⁰ Comprehensive Assessment of Water Management in Agriculture. 2007. *Water for Food, Water for Life: A comprehensive assessment of water management in agriculture*. London: Earthscan, and Colombo: International Water Management Institute.

- protecting life-sustaining functions of water cycles in ecosystems for future generations, promoting natural water harvest and storage systems and natural filtration systems managed by local users;
- capturing virtual water trades and water footprints, and their value and compensation for local communities' land reform issues. Table I provides a sketch of water interests seen through the eyes of rural women.

The case of inland fisheries – linking women's roles, ecology and food security

Fishers are most commonly portrayed as men going out on boats to catch fish while women work on land as fish sellers and processors. This generalization is largely right, but closer examination reveals a more complex situation depending on the economic and cultural context. In some countries – such as Benin, Cambodia, Congo, Mali, Nepal and Thailand – women actively fish. In others, such as Haiti and Uganda, women increasingly own fishing boats and hire men as crew. It is not unusual for women as the fish buyers to provide the working capital for fishing trips against a guaranteed supply of fish when the catch is landed. Worldwide, there are more women (33 million) than men (28 million) employed in the inland fisheries sector when post-harvest activities are included,⁸¹ and 65–90 per cent of the inland capture fish production takes place in the developing and low-income food-deficit countries.⁸² The bulk of inland fisheries production is usually consumed locally, and it is important to rural populations for food and nutritional security, cash income, alternative livelihoods and as a safety net for the poor. In Haiti, for instance, women have a much larger stake in the fishing industry than most documentation presents, and so it follows they also have the potential to sway how fishing and its attendant ecosystems are sustained over the long term.

Ecological value: The ecosystem services provided by inland waters include food and water supply, water purification, biodiversity habitat, fibre and raw materials, climate regulation, flood protection and recreational opportunities. Biodiversity has an important role in aquatic habitats, as a large number of aquatic plants and animals are essential in sustaining fisheries and other uses of aquatic ecosystems. Where biodiversity is maintained and ecosystem processes remain largely undisturbed, the ecosystem retains its ability to buffer or absorb perturbations, including exploitation by fisheries. Impacts on the aquatic environment and habitats arising from non-fishery uses reduce the adaptive capacity of the fish populations. Therefore, decisions on the management of the fishery should consider any activity that, directly or indirectly, affects the ecosystem and thus the fish stocks of concern.

Local management: Small-scale fisheries are presumed to be 'open access'. However, in reality very few inland fisheries are and the right to fish is usually linked to some type of formal or informal, symbolic or substantial management system generally established at the local or community level. While inland fisheries remain a public resource, the responsibility of management and the right to access the resource are increasingly being devolved to private individuals, groups and local communities in recognition that the central state has limited capacity (in particular in developing countries) to enforce management regulations. Further, given that the sector is considered to be male-dominated, it is very likely that community management rarely includes women.

⁸¹ FAO. 2010. *The State of World Fisheries and Aquaculture*. Rome: FAO. www.fao.org/docrep/013/i1820e/i1820e.pdf

⁸² FAO *ibid*

Green economy implications for women: Given what is at stake, and the pivotal roles women play in this food sector, there are at least three immediate actions that need to be taken:

- **Consciousness raising:** Women de facto play a critical role in determining which fish are caught and when – this needs to be acknowledged and supported. They could be prominent agents in promoting the respect of fishery seasons and the suitable sizes for the catch. This could be implemented by telling the fishers not to take immature fish and by not purchasing the immature fish when they are brought to shore. For this to happen, women need to be brought together for women-only training to begin with, until they feel confident, articulate and empowered to be in mixed-gender meetings to convey their understanding and perspectives on securing fish stocks and their environments alongside their male peers.
- **Finance issues:** Since women are a growing boat-owning constituency in some countries, they need micro-insurance support to provide contingency funds should their capital assets be damaged by storms and weather-related disasters. This comprises just one component of a comprehensive credit and savings system for poor women. A fishing finance infrastructure would enable women to become vested players in earning ecosystem payments to restore and conserve mangrove and other marine ecosystems. There has to be some financial compensation that goes hand in hand with a more restrained and ecologically sensitive extraction of natural resources.
- **Legacy issues:** Women understand the value of what is fished and become the de facto ‘enforcers’ of maintaining and monitoring ecosystems, which are fundamental to sustainable green economies. They in turn involve and teach their children – bringing up a new generation with a healthy respect for marine and coastal systems.

International regulatory environment: There are a number of international agreements that can guide governments towards improving governance of the fisheries sector. In addition to the FAO-developed Code of Conduct for Responsible Fisheries, they include the Ramsar Convention, the Convention of Biological Diversity, the Convention on Migratory Species and the World Heritage Convention. These conventions need to be reviewed to qualify, quantify and address the roles and realities of women in the sector.

TABLE 1: MAPPING WOMEN'S WATER PRIORITIES

	Household water	Sanitation	Agricultural water	Ecosystems and biodiversity
Women's priorities and direct interests	<p>Some 40 billion mostly woman-hours per year are spent fetching water in sub-Saharan Africa alone. Similar estimates for South Asia.</p> <p>Women manage water resources for productive and domestic purposes.</p> <p>Lack of access to an improved water source, or even difficult or unreliable conditions of access, translates to 'time poverty' for women and children⁸³</p>	<p>Better access to safe water and sanitation are positively associated with women's health outcomes relative to men. Women benefit disproportionately from access to safe water and sanitation.⁸⁴</p> <p>Access to clean and improved sanitation is especially important for girls' education, affording them health gains, time savings and privacy. A World Bank study suggests women's participation is strongly associated with water and sanitation project effectiveness.⁸⁵</p>	<p>In many countries, women are involved in rain-fed agriculture and backyard or irrigated home gardening, while men often are responsible for rain-fed commodities and land management aspects of irrigation.</p>	<p>For most rural women, biodiversity is the cornerstone of their work, their belief systems and their sustenance.</p> <p>The quality of life of women as forest gatherers is directly linked to the quality of forest cover.⁸⁶</p>
Examples of positive interventions in a green economy	<p>Non-governmental organizations have key role in planning, designing and implementing small-scale projects for water supply, sanitation, health and hygiene. A study by the International Water and Sanitation Centre (IRC) of community water and sanitation projects in 88 communities in 15 countries⁸⁷ found that projects designed and run with the full participation of women are more sustainable and effective than those that are not.</p>	<p>The Clearwater Project in the Gualcinse community in Honduras.⁸⁸</p> <p>The Drinking Water, Sanitation and Community Organization Programme in the rural areas of Pasoc, Nicaragua, has worked on health and violence issues from a gender perspective.⁸⁹</p>	<p>Water projects are becoming more multi-purpose, multi-use and multi-user. The involvement of communities, both women and men, in the selection of and planning for such interventions is the key to successful gender mainstreaming.</p> <p>Irrigation has made it easier for women's animals to be watered. In particular, providing water for multiple uses reduces drudgery and provides women with more time for other, more productive or livelihoods activities.</p>	<p>Exposing and understanding gender-differentiated biodiversity practices and knowledge of women and men enhances biodiversity conservation.</p>

⁸³ UNDP. 2011. Human Development Report, op. cit.

⁸⁴ Ibid.

⁸⁵ Inter-agency Task Force on Gender and Water. 2007. "Gender, Water and Sanitation: A policy brief." www.unwater.org/downloads/unwpolbrief230606.pdf

⁸⁶ European Communities. 2008. *The Economics of Ecosystem and Biodiversity: An interim report*. Cambridge, UK: European Communities.

⁸⁷ Van Wijk-Sijbesma, C. 1998. *Gender in Water Resources Management, Water Supply and Sanitation: Roles and realities revisited*. Delft, the Netherlands: International Research Centre for Water and Sanitation.

⁸⁸ Water Supply and Sanitation Collaborative Council (WSSCC) and the Water, Engineering and Development Centre (WEDC). 2006. *For Her, It's the Big Issue: Putting women at the centre of water supply, sanitation and hygiene*. www.unwater.org/downloads/EvidenceReport_eng.pdf

⁸⁹ Ibid.

Outcomes for women and men	<p>Community-based organizations for water management can improve social capital of women by giving them leadership and networking opportunities and building solidarity among them.</p>	<p>Positive intervention leads to better technical design and planning based on key stakeholder consultation, including:</p> <ul style="list-style-type: none"> - Responsibility for efficient generation and administration of funds; - Increased efficiency and better maintaining and repairing of components to ensure the smooth running of schemes. 	<p>Providing water infrastructure other than irrigation systems, such as wells and hand pumps, not only addresses health and sanitation issues but also reduces the everyday drudgery of women by providing them with more time to participate in other activities.</p>	<p>Millennium Development Goals state that the enforcement of land rights for women will ensure the prevention of biodiversity loss to a greater extent.⁹⁰</p> <p>Studies demonstrate that projects integrating gender dimensions generate superior results. Gender considerations (not solely women's issues) could yield advantages for whole communities and benefit both women and men.⁹¹</p>
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⁹⁰ European Communities. 2008, op. cit.

⁹¹ UNEP. 2010. "Gender and Biodiversity." www.cbd.int/iyb/doc/prints/factsheets/iyb-cbd-factsheet-gender-en.pdf

Investing in natural capital: thematic assessment of land use tensions

Investing \$100 billion to \$300 billion per year in sustainable agriculture between now and 2050, according to UNEP, “could lead to better soil quality and better yields for major crops, representing a 10% increase over the current strategies”.⁹² This would appear to be a natural green economy investment goal, one that would address water and food needs as well as the long-term viability/ health of the ecosystem.

In reality, however, poor women face a complex set of choices around protecting what sustains them. Their community-level economies and ecosystems are comprised of intimate linkages between farming and forestry, food and fuel and, increasingly, village to city to export markets all with high opportunity costs. The following examples illustrate how the green economy agenda of certain (dominant) interests could undermine and negate green economy possibilities of other (weaker) interests, and the very immediate implications for women and their communities.

Global demand for clean energy overrides rural women’s local land use rights

Poor women are witnessing the coupling of two complex systems, one for food and the other for energy, where new global linkages are being introduced in the form of ‘renewable fuels’, new financing systems and new and powerful land interests. The convergence of these factors is increasing pressures on land use in a multitude of ways, and policy makers are struggling to make clear decisions. In the agricultural arena, the traditional tensions for land use between food, feed pasture, fibre and forest have now been extended to the production of biofuels.⁹³

The biofuel market is a growing and dynamic sector attracting new venture capital, feasibility studies and research and development into smart technologies

9. VALUE OF FOOD VS. PRICE OF FUEL

The International Food Policy Research Institute (IFPRI) predicts that depending on rates of agro-fuel expansion, by 2020 the global price of corn will increase by 26 to 72 per cent and the price of oilseeds between 18 and 44 per cent. With every 1 per cent rise in the cost of food, 16 million people become food insecure. In a green economy that places importance on renewable and ‘clean’ energy, how will small-scale farmers be empowered to protect their food crops from being sold and used as fuel crops?

Source: Holt-Gimenez, E. and Patel, R. with Shattuck, A. 2009. *Food Rebellions! Crisis and the hunger for justice*. Oakland, CA: Food First

10. EU BIOFUEL TARGETS – IMPLICATIONS FOR LAND GRAB

The European Union (EU) has set a mandatory target of 10 per cent biofuel use in its transport sector by 2020. This is a fraction of an ever-increasing total. Currently under 2 per cent biofuel is used in the EU’s transport blend, and the EU is expected to have to import about two thirds of the biofuel needed to meet the target. The UK’s greenhouse gas emission reduction targets are among the most aggressive in EU. This has a direct and immediate impact on land allocated for biofuel production. The United States has its own equally ambitious targets. The artificial demand created by these blending targets and by the ever-growing quest for energy to maintain the consumption levels of industrialized countries is one of the main drivers of large-scale unsustainable production in the South.

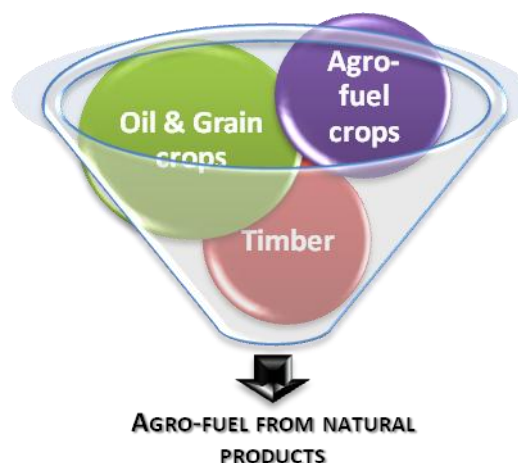
⁹² UNEP: Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication op.cit

⁹³ Biofuels are liquid fuels derived from non-fossil biomass (recently living organisms and their metabolic by-products). While they are generally thought of as vehicle fuels, biofuels can be used in any application that currently uses liquid fuels, e.g., in generators or cooking stoves.

in support of biomass development. The production of biofuels (ethanol and biodiesel) is driven primarily by demand from the EU and the Far East (see Box 10).

Despite the fact that biofuels may only be one small

FIGURE 2: AGRO-FUEL SOURCES



element⁹⁴ in a world-wide future energy mix, the immediate impacts on women's land-use options, on their income and livelihoods, on food affordability and related costs of living and, ultimately, on the price of farm land are already apparent. In combination, these factors threaten the already narrow confines within which rural women operate. Biofuel plantations take the form of oil-seed plants and feed stocks such as sugarcane, sweet sorghum, cassava and maize (for ethanol) and *Jatropha curcas*, coconut, sunflower, soy and groundnuts (for biodiesel). As significantly, it takes about the same amount of water to produce one litre of liquid biofuel as it takes to produce food for one person for one day.⁹⁵ While the main large-scale agri-investments are in forestry, biofuels and food, in reality the distinction between the three sectors might be a false one as forestry products, grain and oil seed crops could all supply the biofuel market (see Figure 2).

In most developing countries, the growing of local food crops or landrace species for local diets has been left to rural women almost entirely, with minimal support or infrastructure to strengthen either the sector or women's roles in that sector. It is too early to forecast what the trade offs will be for rural women as more land is allocated to the growing of biofuels and how this could further compromise their food and farm security. On the other hand, integrating biomass production alongside forest and food farming in an organic and holistic way can provide women with a range of viable options.

The current political/economic paradigm ensures that the interests of the global and export economies from the productive capacity of land⁹⁶ are protected while small farming communities across developing

⁹⁴ The International Energy Agency estimates that biofuels will represent 4–7 per cent of the world's road fuel use by 2030 compared to 1 per cent in 2005.

⁹⁵ Some claim that a shift to lingo-cellulosic ('second generation') biofuels would decrease the competition for land and water, but the latest research indicates that potential for reducing fresh water use may more lie in the use of algae ('third generation') biofuels when this technology become available.

⁹⁶ The pace of acquiring lands by global investors quickened in the aftermath of the 2008 economic crisis; this global market in land has very little connection to domestic agricultural plans. Private and institutional investors are seeking ways to diversify their asset bases, including outright purchases or long-term leasing of agricultural lands, more extensive speculation on food commodities and more systemic investments in the entire chain of the field-to-table business. In 2008, agricultural funds made 9.5 per cent return on investment, according to BarclayHedge, while almost every other investment lost money. Financial speculation in commodity futures, following the collapse of the financial derivatives markets, fostered a 'commodities super-cycle'. In 2008 and 2009, speculators seeking quick returns transferred billions of dollars out of equities and mortgage bonds to invest in food and raw materials. This 'heated-up' speculation in commodities has a worldwide impact on food prices because of the globalized system of food production and the domino effects between different food sectors. The price impact on food-

countries are witnessing land being taken away from them (see Box 11). Under a green economy regime a new paradigm needs to emerge.

11. VIRTUAL WATER IN FLOWER EXPORTS - KENYA

Lake Naivasha, officially 130 square kilometres, shrank in 2007 to about 75 per cent of its 1982 size. The undulating hills around the lake have few trees left. According to conservationists and ecologists, the lake could be little more than an African Aral sea – a turbid muddy pond – in about 15 years time. The most visible changes to the lake in the last 30 years, and the cause of much of its problems, are the giant sheds and greenhouses of more than 50 major flower farms and the settlements of people who have flooded into the area since the global flower industry moved in. Naivasha is now Europe's prime source of cut flowers, which are grown on more than 50 sq km of land around the lake in the open and under 2,000 ha of plastic. Britain imported 18,000 tonnes of flowers from Kenya in 2005, nearly twice what it imported in 2001. There are no publicly available figures for how much water the companies extract from the lake, but they are conservatively estimated to take at least 20,000 cubic metres of water a day on average. Climate change, which is increasing the severity and frequency of droughts, and the over-extraction of water are now stretching the lake to its limits.

Source: Ogodo and Vidal, 'The African paradise ravaged by roses', *The Guardian*, 14 February 2007

Evidence from the field show that women with insecure land rights are the first to be displaced⁹⁷ by large land deals or 'land grabs' (see example in Box 12) – a term⁹⁸ used by the International Land Coalition (ILC)⁹⁹ for deals that are:

- in violation of human rights, and particularly the equal rights of women;
- not based on free, prior and informed consent of the affected land users;
- in disregard of gender-specific social, economic and environmental impacts;
- not based on transparent contracts that specify clear and binding commitments about activities, employment and benefits-sharing;
- not based on democratic planning, independent oversight and meaningful participation.

Additionally, most land grabs are in effect water grabs; many of the capital investments have irrigation infrastructure as an upfront cost and most land deal agreements guarantee the investor free and unlimited access to the use of local water sources. One example is the (since cancelled) BioEnergy Africa, which had guarantees from the Government of Mozambique for the use of up to 750 million cubic

importing states and citizens around the world has been devastating. Tandon: Unpublished Paper 2011 "From Under Their Feet" Land Grab impacts on women small holder farmers in Africa.

⁹⁷ See, for instance, Tandon, N. 2010. "Land Investments are Wholesale Sell Outs for Women Farmers." *Pambazuka News*, issue 484. <http://www.pambazuka.org/en/category/features/64921>

⁹⁸ Land grabbing has also been defined as "land loss by rural populations due to large-scale land acquisition by foreign business (be it by purchase, lease or other forms of control over land such as long-term contract farming) for industrial agricultural production." See: Foreign land grabbing in Africa. 2009 Monitoring report by European Civil Society Organizations of European Commission's proposal for Advancing African Agriculture (AAA)

⁹⁹ The International Land Coalition (ILC) consists of 116 organizations, from community groups to Oxfam to the World Bank. The ILC agreed to this definition at its Assembly in Tirana, Albania, on 26 May 2011

metres of water from the Massingir dam for sugarcane plantations. Such diversion of water resources would have undermined and compromised the capacity of adjacent communities to produce food and interfered with pastoralist livestock grazing practices.¹⁰⁰ Box 11 is also an example of the links between plantation/export farming and water usage.

12. JATROPHA PLANTATIONS DISPLACE WOMEN'S ECONOMIC SOURCES OF LIVELIHOOD – PHILIPPINES

With financial support from the Asian Development Bank, the Philippines set aside a million hectares for *jatropha* plantations. The plant's seeds contain up to 40 per cent oil, and it is now cultivated on a massive scale for bio-diesel in several countries including India, Indonesia, Malawi and Swaziland. In Mindanao, an island in southern Philippines, where the plant's local name is *tuba-tuba*, whole tracts of arable land used for food crops, like rice, are gradually being turned into agro-industrial plantations for biofuels. For Erlinda Garcia and several other village women, the rush to plant *jatropha* has meant losing the patches of *cogon* grass that they harvested for roofing, and the freshwater snails that lived in ponds, now drained for plantations. The women used to sell the snails and cogon grass, and were employed as seasonal weeders, gleaners and harvesters on the rice fields.

Source: Reyes, L.S. 2007. "Biofuels Gain, but Food Farms, Forests Lose." Inquirer.net.

Policy challenge: does a green economy regime rule out unsustainable biofuels? How will it address the issues of further enclosure of the commons by putting a price on nature and natural resources that essentially prevent the poor from accessing the same?

Plantation economics destroys biodiversity and livelihoods

Currently, small-scale farmers, peasant farmers and almost all women farmers produce food in circumstances that are becoming more challenging and more tenuous with each passing season. This is because their role is not only generally unrecognized or undervalued but is also being undermined and threatened by agro-industrial farming systems¹⁰¹ at a scale and with a ferocity hitherto unseen.¹⁰² Popular policy discussions and solutions focus more on revenue streams and on large-scale growing of food and commodities for trade and less on promoting systems of farming that provide a permanency of food and water that enables people to feed themselves.

The industrial nature and mode of agricultural investment often goes beyond the visible immediacy of land grab to the destruction of land itself. The use of inorganic fertilizers and synthetic pesticides and herbicides, increased landscape homogeneity, reduced fallow periods, the wholesale drainage of water systems and decimation of ecological diversity all contribute to damaging soils and ecosystems, which lasts long after the industrial investors have left. The intensification of agriculture and subsequent degradation of ecosystem services further erode local food security programmes from which rural women could benefit.¹⁰³

¹⁰⁰ FIAN International, ICCO and Brot fur die Welt. 2010. *Land Grabbing and Nutrition: Challenges for global governance*.

Germany: Right to Food and Nutrition Watch.

¹⁰¹ Background papers on commercial farming in Africa commissioned as part of the Competitive Commercial Agriculture in Africa (CCAA) study turned up not a single case where large-scale farms have ever achieved competitiveness in the export of food crops.

¹⁰² Similar 'enclosure movements' took place in England some 400 years ago. Over a period of 100 years, they put land holdings in the hands of small landed gentry and displaced thousands of peasants.

¹⁰³ It is already evident from experiences in Malawi that the heavily mechanized, capital-intensive plantation system that underpins sugar production around the world at most provides low-level wages for unskilled migratory labourers – primarily

Food production has grown impressively over the past decades but at a price. In developing countries production increase has to a large extent been achieved through agricultural land expansion – mostly at the expense of forests. In developed countries it has come in response to the intensification of farming on existing agricultural land and the application of additional inputs of water, fertilizers and energy.¹⁰⁴ Evidence shows that the leading contributor to Germany’s biodiversity loss, for instance, is industrialized farming, with over 500 plant species endangered or extinct as a result of agricultural practices. In the United States almost three quarters of potato production comes from just four closely related varieties, 76 per cent of the nation’s harvest of snap beans comes from just three strains and 96 per cent of pea production comes from just two varieties. The corn industry is so dependent on inbred lines of hybrids that one seed company official admitted that “the corn seed industry is probably working from the narrowest base in history”.¹⁰⁵ Developing country rural women, in contrast, who are for the most part outside of the industrial agriculture complex, are still the keepers of seed biodiversity and species management.

13. TIMBER PLANTATIONS AND WOMEN’S LABOUR - MOZAMBIQUE

In Mozambique over the last few years, the main impact of large-scale pine and eucalyptus plantations on peasants in Niassa province has been the appropriation of community lands by companies. Women make up a large part of the plantation workforce; their involvement is usually confined to menial (low-paid) physical tasks such as weeding or bark stripping. At the same time these women have to take responsibility for home management, child rearing and numerous related tasks. In the case of out-grower schemes, especially when the male household head is absent, women must bear the additional responsibility for protecting and managing the woodlot, often receiving little reward as in most cases the income from the sale of the wood goes directly to the man, who is usually the legal beneficiary of the out-grower agreement. Of Mozambique’s 11 provinces (one of which is the capital city, Maputo) 9 have received agro-industrial foreign investment. The average area of these timberlands is about 100,000 hectares with the largest in the 200,000 ha range. (Out-grower schemes are contractual agreements between growers and landholders for the production of commercial commodities.)

Source: Overbreek Winfridus (April 2010) *The Expansion of Tree Monocultures in Mozambique. Impacts on Local Peasant Communities in the Province of Niassa A field report, World Rainforest Movement*

Commercial plantation farming promoted by agro-investors has gender implications for employment and income. By its very nature, plantation agriculture (unlike small-scale, organic or permaculture) is not labour intensive. While there may be promises of seasonal manual harvesting work (estimated at three workers per hectare), the likelihood of mechanization of harvesting with its attendant drop in labour needs is very high. In the tropics, 100 hectares dedicated to family farming customarily generates about 35 jobs (see Box 13). Oil palm and sugarcane plantations provide ten jobs, eucalyptus two, and soybeans

during harvest time. Profits end up in the hands of a very limited number of people overseas. And women face the brunt of sugarcane plantations encroachment on their farming land.

¹⁰⁴ Foley J.A. et al. 2011. “Solutions for a Cultivated Planet.” *Nature*, 478: 337–42

¹⁰⁵ Norberg-Hodge, H. Merrifield, R. and Gorelick, S. 2002. *Bringing the Food Economy Home: Local alternatives to global agribusiness*. London: Zed Books.

a scant half-job per 100 hectares,¹⁰⁶ all of them poorly paid.¹⁰⁷ In a competition for jobs, women are less likely to gain a foothold in the market. In certain situations, the heavy physical stress excludes women altogether. In fact, it might be that women actually lose income sources because more and more of the land that they till is taken over to grow commercial crops (see Box 13).

Policy challenge: Mainstream agricultural policy is at odds with what needs to happen on the ground and is being further entrenched by powerful politics and profit motives of the day. How will a green economy set of policies reverse this trend?

Four years ago, 60 countries called for radical changes in world farming when they signed the report of the UN's International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD).¹⁰⁸ The IAASTD is the biggest study of its kind and intended to guide world agriculture development and food production in the coming decades. It reflects a growing consensus among the global scientific community that

the old paradigm of industrial, energy-intensive and toxic agriculture is a concept of the past. The key message of the report is that **small-scale farmers and organic, agro-ecological methods are the way forward to solve the current food crisis and meet the needs of local communities.** Greening agriculture in developing countries and concentrating on smallholders can reduce poverty while investing in the natural capital on which the poor depend. Greening the small farm sector through promotion and dissemination of sustainable practices could be the most effective way to make more food available to the poor and hungry, reduce poverty, increase carbon sequestration and access growing international markets for green products.¹⁰⁹

These are invaluable eco-services and environmental services that, in a green economy, should hold a very high value. But who would pay what to whom?

14. A MILLION HECTARES FOR ONE POWER STATION - UK

Energy technologies such as Rapid Thermal Processing (RTP) convert wood chips into pyrolysis oil (or bio-oil) and hydrocarbon fuel for blending with fossil fuel at refineries. Increasingly wood chips and wood pellets are used in power stations; one station operator in the UK, for instance, estimated they would need 2.4 million tonnes of biomass (wood) per year, which would require at least one million hectares of tree plantation to feed this one power station alone.

Source: Biofuels Watch "Biomass (wood chip) power station on Anglesey," 27 January 2010, <http://bio-fuel-watch.blogspot.com/2010/01/biomass-wood-chip-power-station-on.html>

¹⁰⁶ A UNU-WIDER Working Paper presents a computable general equilibrium model to assess the employment and poverty implications of *jatropha* growing – it calculates that just 12 people are employed per 100 ha of *jatropha* cultivation, and about 11 people involved per 10,000 litres of biodiesel production. An interview with Mozambican women growing *jatropha* suggests that other farming activities suffer as a consequence of women's labour over *jatropha*. Arndt, C., Benfica, R. and Thurlow, J. 2010.

¹⁰⁷ Holt-Gimenez, E. and Patel, R. with Shattuck, A. 2009, op. cit (Box 9), p. 72.

¹⁰⁸ The work of more than 400 scientists over four years, the 2,500-page 2008 report is a sobering account of the failure of industrial farming. See: www.agassessment.org/

¹⁰⁹ UNEP. 2011. "Towards a Green Economy: Pathways to sustainable development and poverty eradication – A synthesis for policy makers." www.unep.org/greeneconomy/Portals/88/documents/ger/GER_synthesis_en.pdf

Energy and resource efficiency sectors of interest to poor women

Global energy demand will grow by 40 per cent up to 2030 with the growth coming from non-Organisation for Economic Co-operation and Development (OECD) countries. More than 80 per cent of energy consumed worldwide comes from burning fossil fuels. China, India and the Middle East are expected to double their primary energy demand, while demand in Africa and Latin America is projected to increase by about 40 per cent. Almost 70 per cent of the increase in global oil demand up to 2030 is projected to take place in China and India alone. The International Energy Agency estimates that \$270 trillion will be invested into energy supply and use under a business-as-usual scenario between 2007 and 2050.¹¹⁰ According to the World Bank, some 1.4 billion people lack access to electricity, almost 85 per cent of whom live in rural areas; 2.6 billion people use solid fuels including wood, charcoal, coal and dung for cooking and heating, with fumes and smoke from open cooking fires killing an estimated 1.9 million people, mostly women and children every year from emphysema and other respiratory diseases.¹¹¹

Leapfrogging to clean renewable energy at community level

There is an analogy to be drawn between the transformation of the energy sector and that of the telecommunications, information and communication sector. Public support for research and development in information and computer technologies laid the foundations of the subsequent Internet and communications boom that generated substantial private investment and high levels of income and employment growth. Communities have leapfrogged from no telecommunications to wireless (skipping the land-based fibre optic infrastructure altogether), and rural communities could similarly benefit from a direct leap into clean and renewable energy systems, skipping fossil fuel-generated electrification almost entirely.

Bottom-up approaches to develop the renewable energy sector appear to be more successful than centrally controlled models. The Danish wind industry, for example, has developed through a bottom-up approach. It emphasizes incremental innovation based on the knowledge gained through building and deploying progressively advanced turbines. Women's adaptation of smokeless stoves follows a similar process of grass-roots training, marketing and improvement. In contrast, the top-down engineering approach adopted in the United States has had much less success at building viable wind turbines and developing a competitive wind industry.¹¹² In rural communities across Tajikistan, for example, utilization of small-scale renewable, especially micro hydro-power plants (HPPs) could ease the burden on small communities from collecting traditional biomass and the buying of kerosene for cooking and heating.

Such small installations require little, if any, international products, and using local goods and services would result in returning the money to the local economy thus inducing progress. Jobs would be created

¹¹⁰ Jones, A. 2011. "Transforming the Financial Sector to Work for People Rather Than Profit Alone." Green Economy Coalition. www.greeneconomycoalition.org/know-how/transforming-financial-sector-work-people-rather-profit-alone

¹¹¹ World Bank. n.d. "Energy." <http://go.worldbank.org/E084GP3GQ0>

¹¹² Heymann, M. 1998. "Signs of Hubris: The shaping of wind technology styles in Germany, Denmark, and the United States." *Technology and Culture* 39(4): 641–70.

and people, especially women and children, would have more time for studying and other activities as a result of the decreased need for firewood and dung collection. The availability of light would allow for a better quality of life and longer hours for various indoor activities. Local scientific research and technological know-how in solar, wind and biogas energy production already exist as do numerous promising examples and ‘pilot projects’ that demonstrate the possibilities and the positive impacts of these interventions. The problem remains that women are not directly engaged in the decisions around these investments and that investors, financiers and funding mechanisms are geared to large-scale projects and disbursements of large sums of money. The Small Grants Programme of the Global Environment Facility (GEF) is one of the few grant mechanisms that address community scale needs.



Alternate energy sources could reduce greenhouse gas emissions,¹¹³ increase the natural use of manure for renewing top soil, enable women to use the time that they would have been spent gathering and storing fuel on other things, reduce indoor pollution with smoke-related health problems and provide energy security. A home with an insulated basement and roof (using hay) and south west facing windows is better protected against freezing temperatures through winter months; less fuel is burned for heat. Windows facing the SW are a natural heat trap; the temperature difference between these two windows (framed in black) and the window to the far end of the home is noticeable to the family. The head of this household is a widow and mother of five children. (Personal observation, Tajikistan, January 2011.)

Potential roles for women - producing and managing renewable energy

Energy inputs for agriculture have increased significantly, in particular for land preparation, fertilizer (primarily nitrogen) and irrigation. Industrial agriculture today is very energy intensive. The energy dependence of global agriculture is also reflected in the close correlation between crop and oil prices, making high input agriculture less profitable under higher energy costs. The full production and supply chain accounts for around 30 per cent of total global energy demand.¹¹⁴

¹¹³ Electricity is the fastest growing form of energy use, projected to grow by 87 per cent by 2035, with almost one third of that growth coming from China alone. The renewed interest in hydropower is driven by energy security and climate change concerns (around one fifth of the projects registered under the CDM are hydropower projects). It is a largely carbon-free and stable source of (and way to store) energy, though release of methane gas may occur depending on the context, and in some cases susceptibility to drought can become a problem. See also: IEO. 2010. “International Energy Outlook 2010.” Washington, DC: US Energy Information Administration. www.eia.gov/oiaf/ieo/index.html

¹¹⁴ See Kim, G.R. 2010. “Analysis of Global Food Market and Food-Energy Price Links.” www.systemdynamics.org/conferences/2009/proceed/papers/P1332.pdf

15. FIRST NATIONS COMMUNITY OWNERSHIP AND BENEFITS FROM CLEAN ENERGY - CANADA

For centuries, the waters off Vancouver Island's west coast were a source of food and transportation for the Tia-o-qui-aht First Nation (TFN). In 2010, these waters also became a source of clean energy through Canoe-Creek Hydro, a project owned and operated by TFN and built to exacting environmental standards to reflect their stewardship of the land. Vancouver City Savings Credit Union (Vancity) provided a loan of CDN\$5M for the plant, which is projected to generate annual revenue of CDN\$1.6M and power 1,700 homes in the area. With profits from the sale of power to BC Hydro, the TFN plans to construct a salmon hatchery to rebuild stocks and to rehabilitate local streams.

Source: Canadian Task Force on Social Finance. 2010. "Mobilizing Private Capital for Public Good."

http://www.marsdd.com/dmsassets/reports/socialfinance_taskforcereport_2010.pdf

These costs create particular hardships for energy-poor communities and their backbone: local farmers. However, by having historically been less dependent on the provision of fossil fuel energy, rural energy poverty can be addressed through a combined policy of changes to farming methods, community reforestation, a shift away from combustible fuels and the development of renewable energy systems that cater to women's needs and priorities. These could include, for instance, mixed farming practices

16. SOCIAL FUEL SEAL PROGRAMME - BRAZIL

The Social Fuel Seal Programme seeks to address chronic poverty, energy security and sustainable economic growth. It is part of the National Programme of Biodiesel Production and Use (PNPB), established in December 2004. The PNPB developed the legal and regulatory framework to cultivate the production of biodiesel, which granted the opportunity for economic and social inclusion of small-scale farmers. The programme aims to promote the establishment of family farmer cooperatives, which may act as intermediaries between smallholder farmers and biodiesel producers, in order to strengthen the bargaining power of the former. Biodiesel companies that have the Social Fuel Seal get a partial or total reduction in federal taxes when they purchase minimum percentages of raw materials and sign contracts with family farmers and provide them with technical assistance. The tax incentive system takes into account regionally determined social inequalities and the geographically specific agro-ecological potential for biodiesel feedstock production. According to project reports, chronically poor farmers have been able to improve their food security, are stimulated to acquire more land and have strengthened their capacity to plan for the longer term. The programme has been implemented in some of the most impoverished areas, has created multiple jobs and has stimulated income generation while providing a more energy secure environment for all of Brazil. (It is not clear how many women farmers directly benefit from the programme as the analysis is not gender disaggregated.)

Sources: Government of Brazil. 2011. "Energy Matrix." [www.brasil.gov.br/sobre/economy/energy-](http://www.brasil.gov.br/sobre/economy/energy-matrix/biodiesel/br_model1?set_language=en)

[matrix/biodiesel/br_model1?set_language=en](http://www.brasil.gov.br/sobre/economy/energy-matrix/biodiesel/br_model1?set_language=en); Biopact. 2007. "An In-depth Look at Brazil's 'Social Fuel Seal.'"

<http://news.mongabay.com/bioenergy/2007/03/in-depth-look-at-brazils-social-fuel.html>; BioEnergy Industry News. 2008.

"Brazil's Biodiesel Mandate Comes into Effect." www.thebioenergysite.com/news/219/brazils-biodiesel-mandate-comes-into-effect

that integrate food and biomass cultivation or that support the processing of farm waste into fuel briquettes in the hands of women. National governments need to support 'enabling environments' that mainstream local technical solutions, such as solar energy or insulated construction that harnesses energy through renewable sources. Governments need to break the prevailing centrally focused nature of energy production, transmission and distribution through regulatory policies, such as removal of

subsidies for fossil fuels or shadow-pricing, and through promoting decentralized off-grid renewable energy programmes.¹¹⁵

While the green economy drive for renewable energy is palatable to most, poor communities might need information on the newest developments in the biofuel and biotechnology sectors and what this might mean for their futures. They need to consider that biofuels might not be a green solution but primarily a trade-off between land and water use and, ultimately, between ecosystems and livelihoods. At the same time, women need to become more knowledgeable about traditional biomass fuels as a source of clean and sustainable energy for their own uses. They need to develop critical mass collective negotiating power to ensure that small-scale biomass cultivation and processing are established to serve local communities. They also need to learn about crafting policies and designing incentive models, such as Brazil's Social Fuel Seal programme (see Box 16) or Bangladesh's Coastal Electrification and Women's Development Cooperative.¹¹⁶ Key points in the green economy energy sector include:

- women's agencies and organizations working at local levels to identify indigenous plants for the long term process of re-growing forests;
- women's agencies training women in insulating homes, capturing heat and enhancing stove efficiencies and in acquiring technical know-how and maintenance competence of rural renewable energy sources;
- support for the disbursement of investment funds for small-scale, decentralized off-grid renewable energy projects;
- instructing and training women and men on how best to apply for and access rural energy support financing schemes;
- investing in local 'clean green' and renewable (micro-) energy systems customized to the requirements of regions and their climate-related priorities.

¹¹⁵ Research estimates suggest that doing so would save billions of dollars annually around the globe and reduce carbon emissions by as much as 5 per cent. Definitions of what constitutes a subsidy range from the difference between domestic and international energy prices to more specific tax breaks or direct subsidies to fossil fuel industries. A Spanish study argues that fossil fuel subsidies should include the investments made for roads and highways and the security costs of maintaining safe shipping routes for the international petroleum market. Under that much more expansive definition, oil subsidies are estimated at \$574 billion to \$1.736 billion in 1998 alone. While there is disagreement over the extent of fossil fuel subsidies, scholars agree removing subsidies will increase overall economic welfare and reduce emissions. See: Koplow, D. and Dernbach, J. 2001. "Federal Fossil Fuel Subsidies and Greenhouse Gas Emissions: A case study of increasing transparency for fiscal policy." *Annual Review of Energy and Environment* 26: 361–89. Subsidies to key sectors (i.e., agriculture, fisheries, mining, energy) are running at around \$1 trillion per year. Collectively, subsidies represent 1 per cent of global GDP, yet many of these contribute directly to biodiversity and ecosystem damage; see UNEP. 2009, op. cit.

¹¹⁶ See http://foundation.e-arttic.com/wiki/tiki-download_wiki_attachment.php?attId=4

The informal sector¹¹⁷ – resilience, innovation and growth

Existing market structures and incentives have contributed to inequity. New economic opportunities need to be made available specifically to small and micro-entrepreneurs, including those working in the informal economy. The emphasis should be on small scale, labour intensive products and services rather than large capital investment projects.¹¹⁸

Latest figures estimate that 50.1 per cent of women non-agricultural workers in Latin America make their living in the informal sector, compared with only 44.1 per cent of their male counterparts. Women informal workers also tend to be clustered towards the lower end of the informal occupational spectrum as own-account workers, piece-rate or sub-contracted labourers, street vendors, domestic servants and unpaid family workers. In Latin America as a whole, women earn on average 64 per cent of men's wages in the formal sector and only 52 per cent of men's wages in the informal sector.¹¹⁹ There are at least three reasons why the informal sector and women's roles in this sector could 'make or break' the roll out of green economies:

- 1) In many aspects, the informal sector is an economy in its own right. It is a source of livelihoods for the working poor around the world, with its myriad of ways of organizing capital, distributing surplus and caring for its members. It has a socio-cultural dynamism that is often disregarded by entrepreneurial models. Artisans design, adapt and manufacture energy-saving cooking stoves, food warmers, milk coolers and chaff cutters. They recycle plastics, waste metal and spare parts and are the 'fix-up' sector for anything that needs repairing. In Kenya, 'Jua kali' artisans are already creating new equipment that can preserve heat for a long time; they are also manufacturers of electrical cooking gadgets to reduce reliance on charcoal and wood.
- 2) Informal sector members have collectively organized themselves around service work (e.g., waste collectors) or around natural capital assets (e.g., land); and they are, for all intents and purposes, at the forefront of adapting to environmental stress. Organizations such as the Self-Employed Women's Association (SEWA), HomeNet, StreetNet and the Uruguayan Association of Rural Women (AMRU) are widely cited as success stories of the potential for social transformation through collective organizing by poor women in the informal sector.

¹¹⁷ The informal economy is the diversified set of economic activities, enterprises and workers that are not regulated or protected by the state. Originally applied to self-employment in small, unregistered enterprises, the concept of informality has been expanded to also include wage employment in unprotected jobs. So defined, the informal economy comprises half to three quarters of the non-agricultural labour force in developing countries. When informality in agriculture is also measured, the share of informal employment in total employment is higher still: up to 90 per cent in some countries in South Asia and sub-Saharan Africa. Although comparable estimates are not available for developed countries, evidence suggests that non-standard jobs and self-employment represent a sizeable (more than 25 per cent) and growing share of total employment in Western Europe and North America. In sum, the informal economy today represents a significant share of the global economy and workforce.

¹¹⁸ Green Economy Coalition. 2011. "Green Economy: Developing country stakeholders have their say."

www.greeneconomycoalition.org/sites/greeneconomycoalition.org/files/GEC%20dialogue%20synthesis_FINAL.pdf

¹¹⁹ United Nations. 2010. *The World's Women 2010: Trends and statistics*. New York: United Nations, pp. 88–89.

- 3) 3) The informal sector is growing exponentially and is emerging in new and unexpected spaces. It represents a significant but largely over-looked share of the global economy and workforce, a fact that has become more apparent in the recent global downturn. Renewed interest in the informal economy stems from the recognition of links between informality, growth, poverty and inequality. A 2009 UNDP study reported on the severe impact of the global economic crisis on the informal sector, especially among daily labourers, as a majority of them are uncounted and invisible ‘phantom workers’, lacking assets and education and possessing no legitimate employment-related documents. All these factors have increased the rate and depth of their exploitation as workers compete among themselves to retain their sources of income, making it imperative for governments to measure the impact of the ongoing crisis on the informal sector.¹²⁰

17. SLUM HOUSEHOLDS CLEAN UP CITY CANAL – THAILAND

About 3,800 poor households live in the 12 slums that line Bangkok’s Bang Bua Canal. After a century of living with the daily risk of fires and eviction, and facing constant accusations of polluting the canal, the people living along the canal joined hands with the Baan Mankong Programme to upgrade their communities and secure their land tenure. With collaboration from the district authorities, a nearby university and CODI [the Community Organizations Development Institute], the 12 Bang Bua communities formed a network, started savings groups, formed a cooperative society and prepared plans for redeveloping their settlements and revitalizing their canal. In the process, the communities have become the city’s ally in revitalizing this important canal.

With support from Bangkok’s city-wide network of 200 canal-side communities, Bang Bua was able to successfully negotiate a long-term lease to the public land they occupy. Bang Bua convinced the authorities that redeveloping their communities in the same place is good for the residents and good for the city as a whole. After long negotiations, the residents bargained the Treasury Department down to a monthly land rental rate of \$1–2 per household, depending on the size of their house. Households pay the cooperative, which then makes a collective payment to the Treasury Department. Besides new houses and infrastructure in the 12 communities, the canal is also being improved and a brand-new, tree-lined, five-metre lane is being built along its edge, which will provide access to the settlements and space for children to play, people to visit and vending carts to sell their food and wares. The Bang Bua communities hold regular canal-cleaning festivals, use organic compost and water plants to bring the water in the canal back to life and continue to negotiate with upstream polluters to reduce toxic effluents in the canal. A community-managed ‘floating market’ is also planned.

Source: UN-HABITAT and UNESCAP. 2008. “Housing the Poor in Asian Cities: Quick guide 6.”

www.scribd.com/doc/31596375/Community-Based-Organizations-The-Poor-as-Agents-of-Development

In a green economy regime, where (a) access to public commons may be further curtailed; (b) state regulation or protection may not extend to the informal sector; and (c) non-agricultural and agricultural labour as well as the self-employed and volunteer sectors are growing, it would be counterproductive not to engage with the informal sector. Their potential roles in recovery, restoration and eco-system services cannot be discounted. As the Bang Bua example illustrates (see Box 17), public support together with informal sector action can have multiplier ‘green’ effects over the short and long term.

¹²⁰ UNDP India. 2009. “Global Financial Crisis and India’s Informal Economy: Review of key sectors.” New Delhi: United Nations Development Programme. www.in.undp.org/content/dam/india/docs/sewa_web_final.pdf

Waste management industries – an under-rated eco-service

Turning wastes, residues and by-products into a resource for other products and services is one of many cost and environmentally effective ways of dealing with the wastage produced in consumption. An estimated 15 million people in Asia, Africa and Latin America sort through waste to remove and resell the recyclables they collect. As an industry group they face social discrimination and unsafe working conditions and they are not compensated for the true value of their work. In many developing countries comprehensive solid waste management systems are underdeveloped or non-existent and recyclers are providing essential services without recognition or support.

In most countries, waste pickers are predominantly women. In India, women engage in door-to-door waste collection and segregate wet from dry waste. Their hands-on recycling activities contribute to reduce emissions that might otherwise take place through the incineration of waste. A comprehensive 2009 UNDP report recommended that policy makers both identify and acknowledge the significant and dynamic role played by waste pickers in arresting and mitigating the adverse effects of climate change and create and implement the use of technologies/systems that supports the idea of three Rs—reuse, reduce and recycle.¹²¹

An example from Brazil serves to illustrate how this could be done in a way that integrates the livelihoods of traditional waste pickers. In 1989 Coopamare, a Sao Paulo-based non-governmental organization, formed one of the first cooperatives of recyclers in Brazil's most populous city. The cooperative collects 100 tons of recyclables a month, equivalent to half of what is collected by the official Sao Paulo city recycling programme. In an effort to optimize waste management, Cempre, a non-profit association of major Brazilian corporations, was formed in 1992 with the mandate to promote recycling throughout the country.¹²² The association's research identified thousands of people in the informal recycling sector and how the prevailing waste management industry exacerbated the exploitation of recyclers by a long chain of profiteering intermediaries.¹²³ To address this the association resolved to organize and advocate on behalf of recyclers; co-operative members are now earning an average of \$300 a month, about 50 per cent more than before and twice the minimum wage in Brazil. They achieve above-average earnings in part because they are able to sell directly to large scrap brokers.¹²⁴

Other countries have followed this approach and process. The Recyclers Association in Colombia, the National Movement for the Peruvian Recyclers (MNRP), Ciudad Saludable in Peru and the Self Employed Women's Association (SEWA) in India are keenly aware of the benefits associated with increasing the organization and efficiency of the recyclers and its impact on the status and earning power of women in the industry. Ciudad Saludable, a non-governmental organization, has addressed environmental management, solid waste management, the economic and social inclusion of waste recyclers and, more

¹²¹ UNDP India, op. cit.

¹²² Brazilian Recycling Commitment. 1996. "Case Study: Educational kit for the promotion of recycling cooperatives in Brazil." Presented to the Workshop on Micro-Enterprises Involvement in Municipal Solid Waste Management in Developing Countries, Cairo, 14–18 October. http://www.worldbank.org/urban/solid_wm/erm/Annexes/US%20Sizes/New%20Annex%204B.6.pdf

¹²³ Ibid.

¹²⁴ Ibid.

recently, the research and development of clean technologies.¹²⁵ The cooperatives' business models have more than one bottom line. When efficiency and organization is increased, it results in a more effective and efficient recycling programmes, an increase in wages and the development of dignified work including access to social safety nets, education and loan programmes. Latin America has been a leader in revolutionizing the process of solid waste management and redefining what it means to be a recycler and how recyclers contribute to greening the economy and the environment. Waste workers are mobilizing for access to the UNFCCC's promised \$30 billion in 'fast start' climate financing to meet the short-term needs of developing countries for their role in mitigating climate change by recovering recyclable materials from waste.¹²⁶

Carbon trading implications for poor waste workers

In a green economy context, waste workers perform a valuable ecosystem service. Yet, prevailing institutional thinking around carbon trading could dramatically threaten this form of livelihood. The European Union's Standards on Waste and Climate Policy, for instance, backed by the Kyoto Protocol's CDM financing has supported municipal solid waste (MSW) projects for incineration technologies to burn waste and landfill gas systems (LFG) to bury it. These projects not only increase greenhouse gas (GHG) emissions but also displace and undercut informal workers' livelihoods. By buying CDM carbon credits from these projects, the EU is in contravention of its own policies on waste management, which prioritize recycling, pollution controls and waste diversion from landfills. It is the waste-worker communities in Brazil, Colombia, India and South Africa who have mobilized in support of prioritizing recycling, pollution controls and waste diversion from landfills and who campaign on behalf of trash dumps and the livelihoods they provide and against the policy of burning waste.¹²⁷ India alone has 1.7 million waste workers. In the central city of Nagpur, the industrial-style incinerator project has provided jobs for merely 70 people to collect trash out of a total of 1,700 waste workers in the city.

Despite the informal nature of this sector, waste workers are not immune to economic shocks from globalization. A 2009 survey documented that the earnings of waste collectors fell sharply after the onset of the financial and economic crisis. The weakening global demand for waste products triggered a 35 per cent drop of waste prices (other than plastic bottles) collected by waste pickers.¹²⁸

¹²⁵ Ruiz, A., Zela, C., Pajuelo, M., Roldán, P. and Rodríguez, J.C. 2009. From Waste, Changing Minds and Hearts. Lima: Ciudad Saludable. http://www.ciudadasaludable.org/Archivos/DESDE_LA_BASURA_in.pdf

¹²⁶ The funds are committed by developed country governments, see www.faststartfinance.org

¹²⁷ Vilella, M. 2011. *The European Union's Double Standards on Waste Management and Climate Policy*. Global Alliance for Incinerator Alternatives/Global Anti-Incinerator Alliance (GAIA). www.no-burn.org/eu-double-standards-on-waste-management-climate-policy. The United Nations has been encouraging incinerator projects that burn waste — rotting trash produces the potent greenhouse gas methane — to produce energy.

¹²⁸ Waste products collected by waste pickers fell 35 per cent. Products that were hit the hardest include plastic toys (53 per cent), hair (51 per cent), burnt wood (50 per cent), bronze (47 per cent), iron (44.6 per cent), paper (42 per cent) and small iron particles (40 per cent). UNDP India, op. cit. www.undp.org.in/sites/default/files/reports_publication/sewaWebFinal.pdf

Market based instruments – netting benefits for women

Setting political commitments and priorities

Global system levels

Governments need to develop comprehensive policy and legal measures to regulate the social dimensions of a sound and equitable greening of the economy. This will need to happen simultaneously at national levels and in the global arena.

At the international governance level, numerous vital and hard-won principles and instruments could be reinforced in the green economy context. These include the Precautionary Principle¹²⁹ (1992), the Polluter Pays Principle¹³⁰ (1972), Free Prior and Informed Consent, the UN Declaration on the Rights of Indigenous Peoples¹³¹ (2007), Principle 10 of the original Rio Declaration concerning public access to information, public participation and access to justice in environmental matters¹³² (1992) and the extension of the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters¹³³ (1998). In addition two recent new protocols – the Nagoya Protocol on Access and Benefit-Sharing¹³⁴ (2010) and the Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety¹³⁵ (2010) – are critical in the green economy transformation. While none of these documents specifically address gender issues, with the exception of the Rio Declaration, the women's movement and advocacy groups can use these protocols in the context of green economies to secure rights for poor women. At the same time, the women's movement needs to heighten its critique of macroeconomic policies and concerns at the systemic (global systems) level and how these affect poor women to include, among others:

- systemic changes in the way finance capital is managed globally. The finance sector that manages this capital lies at the heart of the needed transformational changes of the economic system; it needs to be held accountable to the triple helix;
- reprioritization and recalibration of foreign direct investments and foreign exchange earnings in relation to pro-domestic and regional economic policies that promote local sovereignty and sustainability;
- democratic and representative governance and regulatory frameworks that underpin equitable terms of trade including taxation regimes for corporate income and intellectual property rights under evolving World Intellectual Property Organization (WIPO)/ Convention on Biodiversity (CBD) terms.

¹²⁹ See: <http://unesdoc.unesco.org/images/0013/001395/139578e.pdf>

¹³⁰ See: www.eoearth.org/article/Polluter_pays_principle

¹³¹ See: www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

¹³² See: www.gdrc.org/decision/principle-10.html

¹³³ See: www.unecce.org/fileadmin/DAM/env/pp/documents/cep43e.pdf

¹³⁴ See: www.cbd.int/abs/

¹³⁵ See: http://bch.cbd.int/protocol/NKL_text.shtml; the Cartagena Protocol on Biosafety (2000) can be found at: <http://bch.cbd.int/protocol/>

In a green economy regime, a key challenge will continue to be the influencing of gender-sensitive policies on the international trade agenda. The lack of transparency on the one hand and the highly technical nature of trade negotiations on the other hampers a clear understanding of the various relevant aspects under negotiation and the vested interests of the most powerful and influential shareholders. The illustrative examples in this report make clear that what happens in the global trade arena is as critical for reducing – if not alleviating – poverty as are national policy and economic conditions that define and influence trade opportunities and their impact on the different groups within a nation's economy. Women's organizations and networks – such as the International Gender and Trade Network – will need to incorporate environmental and ecological measures of trade negotiations and its impact on women to ensure that equity is not sacrificed in the name of green efficiency.

At the national level

At the national level, the transition to a green economy requires political will and decisions that deliberately target poor women including:

- developing consensus around a vision and milestones, to be regulated and monitored by government and by citizens, and a framework for both the private and public sectors that engages and protects all parties;
- promoting environmental and social objectives through gender-responsive financial, industrial and technological policies and measures, including subsidies, incentives, use of government investment and budget, and placing limits to pollution and over-use of resources through regulation and complementary policies;
- reforming finance policies to provide ready access to financial services to poor women; reforms must include capacity building for intermediary institutions as well as executing and enforcing agencies at the grass-roots level to promote and encourage the availability of smaller parcels of funding for local projects;
- engaging in a stakeholder dialogue that includes women in poor communities. This dialogue must address political questions of ownership and entitlement, community mapping and management of the public commons, as well as the economic and social value of environmental resources, infrastructure investments (centralized/ large scale and community/ human scale), terms of social investment policies and the value of social capital in rural investments, methods and processes for conserving resources and rehabilitating ecosystems.

Public sector financial instruments and regulatory controls for poor women

Transformative interventions at the political and policy levels and changes at the level of micro economies and community practices are a lock-step process – sometimes led by one, sometimes by the other. Stories from the field usually prove that the 'enabling environment' for poorer sections of communities is often the result of hard-fought grass-roots struggles. More often than not the 'economic enabling environment' is in fact not 'enabling' for poor women and men. To ensure that the 'enabling environment' does in fact address the priorities and interests of poor women and men, the public sector has a critical role to play in putting in place the plethora of economic and legal instruments to:

- conserve and rehabilitate existing natural capital, biodiversity and ecosystem assets through regulating relations with international markets and the corporate sector (i.e., foreign direct investments and international terms of trade);
- redistribute wealth and welfare through gender-responsive government budgets, expenditures, public provision of services and state regulations of markets and ensure this is done equitably with the needs of entire communities met – both women and men;
- promote the diversity of income sources and the range of jobs from the emerging green economy, including payments for eco-system services, and ensure the inclusion of environmental costs (externalities) in the pricing of products;
- protect and empower the poor and women's access to control over the green economy assets they depend on through accessible legal and financial infrastructures and instruments including court systems, secure finance infrastructures and information networks.

Perhaps the greatest challenge lies in identifying when pro-poor interventions are best dealt with at the centralized (top-down) level,¹³⁶ and when such interventions – including all aspects of designing the governance, policies, concepts, investment strategies, as well as programme, project and implementation decisions – are best left to local and community-based (bottom-up) interventions. **Given that environmental and social values are not well served by markets, regulation through policies and financial instruments as well as collective action can help change markets and optimize pro-poor development, minimize negative externalities and ensure that benefits are equitably shared and human rights are respected.**

¹³⁶ It would appear that top-down, 'global' interventions are imperative when the generation of new instruments and new resources for action are needed.

TABLE 2: GREEN ECONOMY PUBLIC SECTOR INSTRUMENTS

	Example of financial instruments/ policies
Protecting natural capital assets through regulating international market relations and the corporate sector	<ul style="list-style-type: none"> ■ Regulation in combination with market-based instruments such as taxes, charges or tradable permits to change economic incentives and the behaviour of private actors ■ Revising international laws and terms of bilateral and multilateral (trade and development) agreements: e.g., WTO, WIPO, OECD must reform their agreements with a pro-green economy focus ■ Regulating terms and transaction fees for investors exploiting natural capital assets ■ Polluter Pays Principle: e.g., through standards, fees, fines for brown and black carbon, air and water pollution taxes, product taxes, pesticides and fertilizer taxes ■ Full cost recovery principle: e.g., costs of providing products or (environmental) services assigned to the user or the beneficiary; progressive water use fees and other environmental costs on agro-industry/ extraction industries/ plantations ■ Payments for ecosystem services: e.g., local via water provisioning, REDD+, product certification, green public procurement, standards, labelling for greening the supply chain and reducing impacts on natural capital ■ Investing in ecological infrastructure: e.g., resilience to climate change, reduced risk from natural hazards, improved food and water security, poverty alleviation ■ Expanding measures and putting in place policies and sanctions against illegal harvesting of natural resources: e.g., Forest Law Enforcement, Governance and Trade (FLEGT), TRAFFIC and IUU (illegal, unreported and unregulated fishing)
Policies to redistribute wealth and welfare include government expenditure, public provision of services and social protection and state regulation of markets	<ul style="list-style-type: none"> ■ Addressing the disinheritance of native and indigenous women and men through compensation payments ■ Defining and officially recognizing collective rights to common property and resources, Increasing social benefits derived from nature by focusing on sound distribution and recognition of common property rights to resources ■ Defining equity principles with the objective of generating large transfers of resources to poor countries and their communities ■ Putting in place a currency transaction tax,¹³⁷ ecological tax and financial reforms to generate revenue for poverty reduction ■ Ending environmentally harmful subsidies: e.g., freeing up public funds to promote equitable growth and resource efficiencies¹³⁸ ■ Gender-responsive budgeting that incorporates green economy revenues and costs ■ Imposing exacting environmental standards and social conditions for service procurements, particularly where the public sector (government contracts, grants and contributions) is involved
Policies targeting the poor and vulnerable	<ul style="list-style-type: none"> ■ Promoting gender-responsive green growth policies that contribute to socio-economic development ■ Implementation of redistributive and progressive tax systems (e.g., energy and pollution tax in

¹³⁷ Most G20 countries have already implemented a financial transaction tax and the International Monetary Fund (IMF) has confirmed the administrative feasibility of a broader tax. One version of the tax, a levy of 0.05 per cent on domestic and international financial transactions, could raise an estimated \$600–\$700 billion, see UNDP. 2011. op. cit, p. 14

¹³⁸ Removing fossil fuel subsidies would boost economic growth and make energy markets much more efficient The OECD recently published a groundbreaking report based on International Energy Agency (IEA) data that for the first time provides detailed information on more than 250 fossil fuel subsidy mechanisms. OECD. 2012. “Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuel.” Paris: OECD.

www.oecd.org/document/41/0,3746,en_2649_34183_48813609_1_1_1_1,00.html The publication will be updated regularly and expanded over time to cover additional countries and subsidy mechanisms; see also UNEP. 2009, op. cit.

	<p>Viet Nam)</p> <ul style="list-style-type: none"> ■ Targeted transfer fees ■ Financial support or subsidies for small-scale green technology: e.g., efficient, low carbon, sustainable technologies, organic farming, eco-tourism, sustainable resource management and energy efficiency ■ Provide micro-credit, micro-savings and micro-insurance schemes ■ Reward local communities for biodiversity services nationally and internationally: e.g., carbon, pharmaceuticals, food security
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Green economy income streams for poor women

As land and water stewards, farmers who maintain vegetative cover, soil health and moisture content are essentially building the long-term wealth of their natural systems. Since modification of agricultural production choices can provide positive environmental externalities, payment for ecosystem services (PES) has become a topic of interest and experimentation. The close links between environmental sustainability and poverty reduction are resulting in intensified efforts to develop PES programmes that aim to achieve both objectives. By extension, certain forms of farming, such as permaculture and organic farming practices or biomass production (see Box 18), would be ideal candidates to ‘earn’ an environmental protection fee. Poor women could in theory earn fees for their services – if in fact they are positioned to negotiate a seat at the table and equal terms of payment. Farming practices are often the best indicator and determinant of environmental quality (e.g., soil, water, biodiversity).

18. WOMEN EARN INCOME FROM BIOMASS PRODUCTION - RWANDA

In 2004, the women of the SAM Muhima community-based organization received a grant of \$73,500. The women started collecting garbage from 5,245 households, sorting and processing the waste into biomass fuel briquettes and organic compost fertilizer for agricultural production – both of which are in high demand. Since the project became operational, it has contributed to the reduction in deforestation and reduced depletion of soil nutrients by providing an alternative source of cooking fuel. Since 98% of the Rwandan population uses charcoal and/or wood fuel for cooking, pressure on natural resources is great, and much of the country’s tree cover has been eliminated. This project currently employs 117 regular workers and an additional 10 to 25 part time workers. Nearly 90% of these workers are women, with little or no formal education. Within a period of less than three months, project revenue brought the organization’s bank account balance from zero to Frw 5,157,500 (approximately \$9,350), and every worker has opened his or her own bank account. The local government has since copied this model and set up an additional 7 trash collecting cooperatives around Kigali.

Source: USAID “Women Empowered Through Biomass Production.”

www.usaid.gov/our_work/economic_growth_and_trade/energy/publications/success_stories/rwanda_biomass.pdf

Although PES programmes have the potential to be an income stream for rural poor women and men, it remains to be seen how much of these payment schemes will actually benefit women. Women, for instance, who have always cleaned the water canals that feed their fields as a matter of course, may find that as soon as ‘ecosystem services’ become commercialized, they are pushed aside by the men in the community whose priority is to earn income. As long as they are not privy to the negotiated terms around PES, they will continue to be ignored, or worse exploited, by these regimes.

TABLE 3: EXAMPLES OF ECOSYSTEM SERVICES BY ECOSYSTEM TYPE

Ecosystem type	Ecosystem services' four functions: provisioning (e.g., food and water), regulating (e.g., climate regulation), supporting (e.g., waste processing) and cultural	Example of potential PES services supplied by poor women
Croplands	Food production, carbon storage and sequestration habitat, scenic	Adoption of farming practices that enhance ecosystems from agriculture and environmental stewardship, natural processes of rebuilding soil health and biodiversity of species
Grasslands, rangelands	Food production, pollination, waste treatment, soil formation, water regulation, carbon storage and sequestration, biological control	Pastoralists are the custodians of dry land environments, providing services through good rangeland management including biodiversity conservation and wildlife tourism
Forests	Soil formation, waste treatment, air quality, biological control, storm water control, genetic resources, raw material (timber, fuel wood, non-wood forest products), carbon storage and sequestration, insurance against extreme events, recreation	Reforestation initiatives, replanting and management of new forest growth, restoration of forest species including medicinal plants, fungi and grasses
Lakes, rivers, riparian zones	Water supply, waste treatment, food production, habitat biodiversity, recreation, total and aquatic ecosystems	Activities to protect, restore and enhance near-stream and in-stream habitats and processes by restoring and managing grassy buffers, wetlands, riparian forests and flood plains. Indigenous grasses can be planted adjacent to waterways to intercept pollutants and soil erosion.
Marine	Coastline stabilization, fish nurseries, carbon sequestration, water regulation, biodiversity	Conserving mangroves to protect biodiversity means fish nursery habitats remain intact, leading to increased fisheries production; the natural waste processing function of mangroves remains, leading to better water quality; coastal zones are also better buffered from the potential damaging impacts of storms; and the carbon remains stored in mangrove soils and trees.
Wetlands	Water supply and treatment, food and fish production, disturbance regulation, habitat, total ecosystem, climate regulation	Rehabilitation of wetlands through flood protection, sediment trapping, erosion control, maintenance of biodiversity

PES incomes are more likely to become viable options for those women who collectively bargain for payment for these services. These need to be supplemented with systemic income streams that are not limited to just 'servicing' or 'caring' for the green economy but that position and reward women centrally in their communities' management of resources. This in turn assumes that women are able to access existing rural finance infrastructures and that there are systemic and 'built-in' streams of income that could be legislated, regulated and integrated into the green economy rollout that target women.

TABLE 4: POTENTIAL GREEN ECONOMY INCOME STREAMS FOR POOR WOMEN

Alternative income streams	Justification and interest for women	Examples of market-based instruments
Compensation payments (foregone, past and legacy) CAPITAL PAYMENTS	<p>Redresses historical power imbalances, rights and responsibilities of resource-dependent people vis-a-vis environmental service beneficiaries who wield greater political might and economic influence. Tackles questions of ownership, entitlements, knowledge and capital assets.</p>	<ul style="list-style-type: none"> Strengthen women's farming groups to secure and manage financing through collaboration with community-based organizations and micro-banks Enable women to conduct their own detailed needs assessments and budget estimations Compensation payments for lands taken away from indigenous peoples during colonial era, or return of land autonomy to local peoples (e.g. First Nations in Canada) Public relief, reconstruction and rehabilitation paid from public (global and national) funds Transfer payments
Current income (fees and rewards) SERVICE PAYMENTS	<p>Formalizes recognition of women's rights to reside in, use and modify a protected ecosystem and to engage in legitimate natural resource development aspirations.</p> <p>Government programmes provide public services in exchange for green economy contracts; a new source of revenue for performing a defined service (e.g., social forestry).</p>	<ul style="list-style-type: none"> Cost benefit sharing Environmental protection fees for organic practices, biodiversity conservation, sequestration and conservation of carbon stocks, watershed management and rehabilitation, supervision of drinking water, flood and landslide protection, coastal protection Procurement for green services Feed-in tariffs from small-scale energy utilities Employment in green sector businesses (e.g., retrofitting and other energy conservation measures, renewable energy, ecological agriculture or eco-tourism) Investments in restoration and enhancement of natural capital could generate additional income-generating opportunities (e.g., reforestation)
Contingencies and security (future and anticipated) FUTURE FUNDS	<p>Addresses conserving stocks for saving income and securing against adverse shocks and risks through integrating payments and compensation into traded products.</p>	<ul style="list-style-type: none"> Risk insurance for farmers, fishers and foresters Green bonds Communal trust funds Cooperative credit schemes

III. Different Beginnings and Different Outcomes: Enabling Factors for Women's Full Participation in Green Economies

"Now the women are rising up. And when the women rise up from a nation, they are the strongest voice that can be heard and it's a voice that cannot be silenced." *Diane Reed, Cree Society for Communications, Canada*¹³⁹

"It is vital that in the long run, communities of the poor, as the main group seeking social justice, own and manage their own development process, and become central to its refinement and expansion." *Sheela Patel, SPARC, India*¹⁴⁰

Community as the investment entry point

The Orissa experience over a period of 12 months (see Box 19) provides a green economy snapshot of

19. COMMUNITY WATERSHED RESTORATION AND MANAGEMENT - INDIA

Despite abundant natural resources, Orissa is one of India's hungriest states. During the hungry period communities resorted to eating ground-up mango pits and other forest products. In 2001, 200–300 households died of starvation. Agrabamee, a local non-governmental organization that has worked in Orissa's remote tribal areas for 23 years, coordinates community-based programmes to improve food security including watersheds. In the Kodikitunda watershed, Agrabamee scientists worked with tribal villagers to design watersheds in 'bottom-up' planning processes, including:

- Restoration of degraded ridge-lands formerly used as upland fields;
- Soil and water conservation through construction of earth berms and terraces boundary planting, stone gullies to channel run-off, check dams and water ponds for percolation and irrigation;
- Restoration of soil fertility and water absorption capacity through planting nitrogen fixing trees including a drought-resistant tree that produces oil, processed by village women's group;
- Crop diversification and intensification including rice, maize, cashew, spices (turmeric) and fruits (banana, lychee, jackfruit, mango, papaya and lemon);
- Redevelopment of barren low-lands into rice paddy fields.

By 2002 agricultural production had increased by 70 per cent and cropping intensity by 39 per cent. To complement these activities villagers founded a grain bank to ensure against food shortages. They also created a community savings fund to provide loans and help support for village schools. They lobbied for government funds to establish a road to their village (previously inaccessible through vehicle), helping establish minimal links to agricultural markets. Agrabamee managed this project for the five years (1994–99), after which it was taken over by the village watershed user association. A model in the region, it continues to show good results.

Source: UN Millennium Project. 2005. *Halving Hunger: It can be done*. Task Force on Hunger. London: Earthscan, p. 201 (citing Agrabamee, 2002).

¹³⁹ <http://www.un.org/ecosocdev/geninfo/indigens/dpi1717e.htm>

¹⁴⁰ The Society for the Promotion of Area Resource Centres (SPARC) is one of the largest Indian non-governmental organizations working on housing and infrastructure issues for the urban poor. SPARC's primary role is as supporter to two people's movements – the National Slum Dwellers Federation (NSDF) and Mahila Milan (MM). SPARC was founded by Sheela Patel in 1984 to develop solutions that work for the poorest and most marginalized of the urban poor. Its members include social workers, researchers, students, doctors and other professionals who wished to participate in the creation of an institution that would explore new forms of partnerships with the poor. Quote from: <http://issuu.com/ashui/docs/qg6-communityorgs>

what needs to happen at the grass-roots level multiple times over across the world with formal and informal community groups.

In this example, half the village committee members and over half of the beneficiaries of the drought-relief work were women (which highlights again how important water issues are to women). The women formed a self-help group to collect savings and provide loans to its members (underlining the need for finance service structures). Together, the villagers and Agramee conducted a participatory appraisal to identify the village's problems, map its natural resources, and identify opportunities for improving the situation. One of the main outcomes of the participatory appraisal was the recognition of the enormous wealth of local knowledge. The women, among others, designed their wetland rice fields in the valley bottomlands to capture rain run-off from the hillsides, which led to optimal management of the water to grow crops. Another observation was the zero-tolerance for lack of accountability and transparency the women held to. On a road project, the village women found evidence of corruption at local official levels; they took their complaints to the Minister of Rajasthan. As a result, a woman from the village now manages the project. The government has extended this approach to other villages, and local women supervise work in their own areas. Women's economic and socio-political empowerment appears to go hand in hand.¹⁴¹

The community level is the quintessential entry point for investing in women's empowerment in green economies. This is true of informal and formal sectors, of rural or urban groups, and in developing or developed economies. In the Orissa experience, community action began around relief work to overcome the immediate problem of droughts and famine and led to longer-term outcomes such as ecological soil-and-water conservation and social/ ethical outcomes of women's empowerment and leadership. It is especially important that as many stakeholders as possible are equally involved in the processes of exploring strategies and solutions for the greater public good. Because green economy issues are by their very nature highly contextualized and localized, it stands to reason that communities should drive and lead their own development solutions.

Governments usually do not have the resources or the inclination to deal with disempowered groups, and civil society institutions are often too marginalized to bring about change on behalf of poor people. One of the biggest lessons community groups have learned is that in order to bring about change, there needs to be a collective force, a 'critical mass' of people working together. 'Community solutions' by their very nature require many people looking for solutions and experimenting with different contexts to build scale: scale of options, scale of involvement and scale of confidence. When the interests of poor women and men are at stake, they stand a better chance of negotiating their rights and equity stake if they build solidarity around their assets and vested interests and have direct control over the finances that underwrite their futures. There are a multitude of ways communities can participate in the process of resolving problems of land, housing, livelihood and access to basic services if they are in fact involved from the outset in defining the problems and their solutions. Being the ones who face these problems directly, they not only understand them best but are also most motivated to solve them.

¹⁴¹ GTZ Sustainet. 2006. *Sustainable Agriculture: A pathway out of poverty for India's poor*. Eschborn, Germany: Sustainet. http://www.sustainet.org/download/sustainet_publication_india_part2.pdf

In order to make intelligent and informed decisions, communities need access to relevant, contextualized and timely information. Poor women will want access to more options – in the form of physical and virtual infrastructures, information sources and channels of communications – and more collaborative ways of working within the nexus of their vested interests in water, food, fuel and ecosystems. Capacity building and social learning can help to deal with the increasing complexity of cross-sectoral challenges. Therefore, extensive public discourse (as fair and rational as possible) and better education and training, particularly for poor women and men, are indispensable.

Field evidence suggests that women are not only keen to get information but also swift to apply what they learn, and they are pragmatists when it comes to securing assets and natural resources as well as capital and markets for the livelihoods of their communities. Empowering women at the community level will better enable them to help build the solidarity needed not only to tackle the larger globalized paradoxes but also to negotiate the terms of costs and benefits sharing in a green economy.

20. BUILDING WOMEN'S AGENCY – LATIN AMERICA

In October 2011, 15 women's organizations in 8 countries in Latin America joined the Huairou Commission, in partnership with UN-HABITAT and the Dutch Government (MDG3 Fund), in a commitment to increase grass-roots women's participation and influence in local decision-making processes through the Local to Local Dialogue initiative. Pilot initiatives were launched in Argentina, Bolivia, Brazil, Chile, Guatemala, Mexico, Nicaragua and Peru as a result of training by the Commission that inspired women to take on the challenge of supporting other women to participate in local processes, improve partnership and collaboration with local leaders and build governance from the ground up.

Source: Huairou Commission. n.d. "Local to Local Dialogue." www.huairou.org/local-local-dialogue

For this to happen, considerably more resources, including money and time, are required to support women's involvement and peer-to-peer learning in all aspects of community development. At the household level, for instance, women as both household members and heads of household need to be targeted for comprehensive awareness raising and technical training that link adaptive and mitigative farming practices with their immediate water, food and energy concerns. At the production level, local and regional information sharing on natural resource management, adaptive and mitigating farming techniques and rights to land (individual or communal) needs to be facilitated. This needs to be coupled with formal support in the form of investment, accessible credit, appropriate technologies and small-scale mitigation projects. At the policy level, women representative groups and gender experts need to be directly engaged in cross-cutting project and policy design and implementation, and they need to build strategic alliances across the board with the public and private sectors and with emerging and critical perspectives on economic development paradigms.

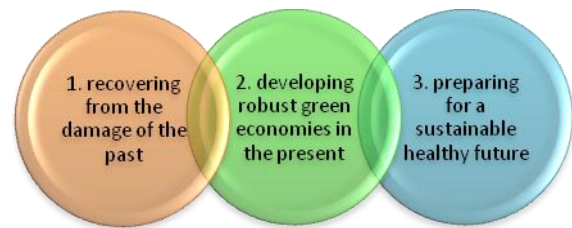
Green economy capacity development at community level

Given the magnitude and global nature of the degradation of ecosystems today – as clarified by the Millennium Ecosystem Assessment (MA)¹⁴² – there are arguably three broad levels of green economy activities that need to take place concurrently:

¹⁴² <http://www.maweb.org/en/index.aspx>

- **Recovering from the damage of the past:** includes restoring, unlearning (damaging ways of managing ecosystems), healing, reforestation, replanting, reinvigorating, cleaning up and reviving and applying traditional knowledge systems alongside new science. It would follow then that one of the most urgent priorities for greening economies would be to invest in reversing and restoring the degradation of ecosystems. This in turn requires deep and hands-on engagement of people and, in some cases, reimbursement or compensation to local communities for environmental damage;

FIGURE 3: CONCURRENT GREEN ECONOMY DEVELOPMENT



- **Developing robust green economies in the present:** includes maintaining, relearning (ecologically sustainable ways of producing and consuming), nurturing, negotiating, protecting for current livelihoods and lives and valuing local knowledge and know-how. This in turn requires investment in the 'soft skills' and know-how of local producers and especially women (who are so often side-stepped);
- **Preparing for a sustainable healthy future:** through conserving, banks (seeds, finance and knowledge banks), storage systems, archival records and the development of intelligent communities. Over generations, women in most rural communities have passed on their skills to manage water, forests and biodiversity, use and preserve medicinal plants, adapt and cope when faced with environmental hazards and a changing climate, and manage waste and sanitation. Harnessing their very context specific knowledge is critical for protecting, managing and sustaining the environment and its resources.

Capacity building involves getting the relevant and appropriate information resources to people and enabling both women and men to use these resources strategically at an individual and community level. Capacity development in green economy contexts specifically needs to resonate with the interests of community members to enable them to conduct their own measurements, valuation, benchmarks and monitoring of ecological goods and services. On that basis, they can develop or negotiate for economic instruments that recognize and protect natural capital. Community capacity development takes place around three locus points:

- development of a life-long learning environment;
- pooling of assets, community trusts and cooperative modes of production and exchange;
- developing women's agency, advocacy and negotiation skills at all levels.

Development of a life-long learning environment

Those who are marginalized from information or who have incomplete information are disengaged from forming decisions about their long-term security. The confluence of rural poverty and environmental degradation are well documented. Environmental degradation and poverty also becomes more widespread often because documentation and information is lacking.

- Communities need to learn about and apply tools in decision-making, negotiation and articulation. These tools can provide for democratic processes and solutions.¹⁴³
- 'Learning by doing' methods can engage women in participatory research into viable alternatives for land use; work with women farmers to identify seed and crop choices that address environmental variations and economic risks; help farmers to discern and choose between indigenous hardy species and hybrid 'climate-smart' varieties; build women's marketing expertise and water management; and test participatory methods such as community mapping, etc. In the emerging green economy paradigm, community mapping will become an increasingly important part of data-collecting, providing people with visual impressions of their physical and natural assets.¹⁴⁴
- Women and men should be directly engaged in the development of participatory training materials and support for their stewardship of energy and water systems (e.g., providing them with incubation funding to build their capacities to steward land, water and biodiversity).

Pooling of assets, community trusts and cooperative modes of production and exchange

Community Development Funds (CDFs) provides one example of communities pooling their assets and resources to optimize sustainable and cooperative use of resources. CDFs typically describe a diverse array of institutions that have been set up in recent years to deliver loans and grants to poor communities. These funds are generally flexible and jointly managed by communities, local authorities and other stakeholders and provide much-needed financing for infrastructure and income generation. They respond to very different and specific local needs, capacities and political contexts. Some have been initiated by governments; others by non-governmental organizations or community federations, with local governments as partners. Women's collective agency can transform society – it depends on and determines their individual agency. Women's ability to influence their environment goes beyond formal political channels, which can be limited by social norms and beliefs regarding gender roles and institutional structures. Women can influence their environments through their participation in informal associations and through collective action, but their success depends in part on their individual ability to make effective choices.¹⁴⁵

¹⁴³ Tools might include systems of scoring, weighting and ranking, as well as book-keeping, record-keeping, archiving traditional knowledge and traditional practices.

¹⁴⁴ Mapping is a vital skills-builder when the time has come to plan and to assess development interventions. Community maps, with their detailed, accurate, first-hand information on sources of pollution, comprise a powerful planning and mobilizing tool; they are also an effective bargaining chip in negotiations for secure tenure. Community mapping exercises can be extended to listing societal benefits, including ecosystem service potentials and opportunities, or where infrastructure needs to be put in place, or where nature needs to be left intact for future generations.

¹⁴⁵ Source: World Bank. 2011. *World Development Report 2012: Gender equality and development*. Washington, DC: World Bank.

At the local level, from village to cosmopolitan communities, and in the formal and informal economies, women and men manage and organize local development programmes and projects within the confines of immediately available resources. This is taking the form of alternative economic and value systems where the primary investment 'currency' is people's time, labour, ideas and creativity.¹⁴⁶ Across many developing country rural communities, for instance, women are adapting models of sustainable agriculture centred on their knowledge and nurtured seed banks, with Local Exchange and Trade Systems (LETS) facilitating barter exchange systems within and among their communities.¹⁴⁷

Developing women's agency, advocacy and negotiation skills

Women occupy key positions at household, local and community levels. These roles need to be expanded into women's effective participation, decision-making and management of sustainable development processes and governance at local, national and international levels. Women can play a central role in influencing sustainable consumption and production patterns, in safeguarding the natural environment, and in managing and monitoring the adequate and sustainable resource allocation within the household and community. Fulfilling this potential would require improvements in their societal status, their access to environment-related resources (e.g., land, safe water, affordable energy resources and technologies) and increased provision of education and training of women and girls, including in environmental science and technology.¹⁴⁸ To reach the most marginalized sections of society, deliberate action is needed to reach the illiterate (see Box 21).

Women need to identify and support those individuals within local and municipal government bodies and institutions and women's national machineries who understand and champion their green economy interests. These institutions often function at a policy-making level, not at the grass-roots level, and often may not involve or engage women. This includes ministries and agencies responsible for solid waste management, national security,

21. ENGAGING WITH ILLITERATE WOMEN - ZIMBABWE

Building on experience derived from broadening the support base for women's movement, there are lessons to be drawn from organizations such as the Zimbabwe Women's Writers (ZWW) group. Even though some ZWW members were not able to read and write, the organization provided the space where women were able to break away from daily chores, meet and tell their stories, share problems and solutions and voice opinions and ideas. "We value these opportunities... women are encouraged to tell their stories in the language in which they feel most comfortable – this effectively reduces the generational gap, and builds bridges between those who are illiterate and those who are not, between rural and urban women."

Source: Tandon, Mary 2007. "Zimbabwe Women Writers." In Duran, L. N. Payne and A. Russo (eds.). *Building Feminist Movements and Organizations: Global perspectives*. London and New York: Zed Press.

¹⁴⁶ Examples include cooperatives and enterprises owned by workers themselves, farmers' movements that are taking over private land of commons, and women's biodiversity-based farming systems.

¹⁴⁷ There are now over 4,000 local currency projects around the world – part of a growing 'slow money movement'. (See McKibben, B. 2010. *Eaarth: Making a life on a tough new planet*. New York: Times Books, p. 140.)

¹⁴⁸ Interactive Expert Panel on "Gender Equality and Sustainable Development." 55th Session of the Commission on the Status of Women, New York, 1 March 2011.

www.un.org/womenwatch/daw/csw/csw55/panels/IssuesPaper-Panel4.pdf

water, forestry, meteorology, climate risk insurance, tourism, lands management and the environment. In other words, the policy context, while still evolving, needs strong and vocal advocacy from and for women and girls.

Green economy investments for support infrastructure for poor women

Women still have limited access to basic infrastructure provisions that would enable them to be full participants in the greening of the economies. The inter-connectedness of the issues – empowerment and ecological health – and the absolute need for a robust underlying infrastructure is reinforced in Richard Rominger’s observation about Africa: “As usual,” he observed, “Monsanto puts the cart before the horse when talking about agricultural development in Africa. Rather than ‘high tech’ seeds, it is more important that farmers in developing countries first have a support infrastructure: markets, especially local markets, farm-to-market roads, credit, land tenure and agricultural services. Studies by both the UN Food and Agriculture Organization and the Rodale Institute, an early pioneer in organic production, show that Africa could feed itself with local, organic production. The intensive organic farms that I am familiar with, that do it right, produce more human nutrition per hectare than the extensive monoculture that Monsanto has promoted in America and elsewhere. Yes, organic farms require more human labour, but in most developing countries that is not a problem. Without this basic infrastructure, the farmers will remain impoverished and reliant on international corporations for their seeds and pesticides.”¹⁴⁹

The day-to-day actions of poor communities, whether in urban centres or rural settings, can either add value through safeguarding natural resources or run up huge costs and ecological debt by denuding natural resources. Continuing urbanization, often driven by deteriorating rural living conditions and a quest for a ‘better life’, has led to a concentration of resource demands and waste products because of higher population density and higher per-capita resource consumption compared with rural areas.¹⁵⁰ Cities are spatially disconnected from their resource base, which increases the need for transportation of essential goods and services. They also pose new challenges to securing adequate living conditions for the poor,¹⁵¹ who are especially food insecure and either disconnected from or dependent on such essential public goods as water and energy. These are all provisions for which women bear primary responsibilities. Leaving rural communities has not changed women’s familial burdens. However, it has put them in a position of searching for opportunities to increase resource efficiencies. It is in this context that women have championed integrated planning of infrastructure for water, waste water and energy and built synergies within their rural communities by providing markets for agricultural products and by recycling waste products into and out of cities (e.g., through cascading water uses – reusing increasingly lower-quality water for purposes that demand lower water quality).¹⁵²

Urban centres and their surrounding ‘suburbs’ are also the location for manufacturing products that are used in rural areas (kitchenware, TVs and appliances, plastics, computers, cars, tractors, etc.) – hence the high level of GHG in these areas. If one includes a footprint of ‘consumption’ and transport miles of

¹⁴⁹ Rominger, R. 2009. “Letter to the Editor.” *The Economist*, 12 December.

¹⁵⁰ For instance, cities account for 75 per cent of all greenhouse gas emissions.

¹⁵¹ See UN-HABITAT. 2003. “The Challenge of the Slums: Global report on human settlements.” Nairobi: UN-HABITAT. There are currently 1 billion slum dwellers in cities, and UN-HABITAT expects that number to grow to 2 billion by 2030.

¹⁵² United Nations Population Division. 2007. “World Urbanization Prospects: The 2007 revision population database.” <http://esa.un.org/unup/>; see also Siebert, S., Burke, J., Faures, J.M., Frenken, K., Hoogeveen, J., Doll, P. and Portmann, F.T. 2010. “Groundwater Use for Irrigation: A global inventory.” *Hydrology and Earth System Sciences* 14: 1863–80; and Siebert, S., Doell, P., Fader, M., Gerten, D. and Hoff, H. 2011. “Virtual Watersheds of Cities.” Paper presented at the Bonn Conference on Water, Energy and Food Security Nexus, 16–18 November.

these items to each house, the green advantage of rural living is not so clear. Pro-poor planning in urban areas is critical to sustainable green economies.

For rural farming communities the challenges and issues are different. As old farming and management systems are being dismantled, farming women and men need to assess whether this is an opportune moment to bring in concerted support in the form of training and investment into agro-ecological farming methods that could both reverse and redress impacts on natural resources, water and land. This requires urgent investment in an interlocking water/ energy/ farming/ ecological system that builds on community resilience, industriousness, creativity and willingness to take risks. There are opportunities to be realized if the 'greening of the economy nexus' is addressed coherently across all sectors through multilevel governance structures with differentiated but clearly defined responsibilities of institutions. However, it is at the community levels where opportunities for more participation, particularly for poor women, can evolve alongside new guidelines and codes of conduct.¹⁵³

Financial infrastructure for poor women

A local level financial infrastructure that provides a range of secure and accessible services to women in low-income communities is imperative. This includes micro-saving reserves, micro-risk insurance schemes, micro-level feed-in tariff structures as well as micro-credits. Decades of donor aid flows, technical assistance roll-out and humanitarian programming provide substantial evidence for the need to bring financing channels 'down to scale' to better address gender-differentiated realities and priorities in disbursements. When credit finance did not reach women, micro-credit finance instruments were adopted. Where formal climate-risk insurance mechanisms are beyond the reach of the poor micro-insurance steps in to provide financial protection for certain risks in a way that reflects poor people's cash constraints and coverage requirements.¹⁵⁴ Larger entities, such as AIG and Munich Re, recognize the viability of investing in micro-insurance and have, therefore, enlarged their portfolios.

Research studies by the International Fund for Agricultural Development (IFAD) and others identify the importance of micro finance¹⁵⁵ infrastructure that enables poor women and men to deposit and access their savings. An estimated 95 per cent of some 180 million poor households in the Asian and Pacific region have little access to affordable institutional microfinance services.¹⁵⁶ Poor and low-income households and their micro-enterprises have an equally high demand for safe and convenient deposit services. Research also shows that poor households have the capacity and willingness to save for emergencies, future investments, consumption, social obligations, education of their children and other personal and communal objectives. Savings are important for micro-enterprises and provide them with a major source of investment funds. Extensive use of informal savings arrangements by poor households is another indicator of their demand for savings facilities, with the demand for deposit services by poor women in the Asian and Pacific region being particularly strong.

¹⁵³ See von Braun, J. and Meinzen-Dick, R. 2009. "'Land Grabbing' by Foreign Investors in Developing Countries: Risks and opportunities." *IFPRI Policy Brief* 13, April.

¹⁵⁴ See Shardul, A. and Carraro, M. 2010. "Assessing the Role of Microfinance in Fostering Adaptation to Climate Change." *OECD Environmental Working Paper* No. 15.

¹⁵⁵ Microfinance is the provision of a range of financial services such as deposits, loans, payment services, money transfers and insurance to poor and low-income households and their micro-enterprises. Microfinance institutions (rural banks, cooperatives, non-governmental organizations, etc.) are defined as institutions whose major business is the provision of microfinance services.

¹⁵⁶ Sharma, A. 2002 Developing Sustainable Microfinance Systems. www.unescap.org/drrpad/publication/fin_2206/part5.pdf

If poor communities are to be the designated beneficiaries of cost-benefit programmes in green economies, to generate revenues from PES schemes or access regular compensation payments for water used by industry, then a rural financial support infrastructure is an absolute necessity.

Information technologies and virtual networks

Information and communication technologies (ICTs) provide an important set of tools for addressing information gaps. They have the potential to make women part of the communication value chain and, by extension, help them break through existing information bottlenecks. In the digital age, sources of information are no longer 'top-down' or 'single-sourced'; they are multi-dimensional and multi-sourced, and women can be both key providers and users of information. As women farmers become more sophisticated ICT users, information management software affords them easier record-keeping and, by extension, more efficient means of forecasting supply and demand for goods and services. To make access for women more ubiquitous, existing nodes of ICT access need to provide both customized women-only training sessions in basic ICT skills.

Bringing the legal systems into local communities

Accessible, simplified and transparent dispute resolution processes at local levels that provide para-legal services to women are, for all intents and purposes, thin on the ground. Local disputes and their resolutions are customarily managed by community leaders and arbitrators, who are in a position to ensure recognition of positive aspects of both formal and customary law and to apply these in mediation provided by community courts. Involving local leaders will help promote a sense of ownership at the local level. Given their central role in dispute resolution processes, it is essential that community leaders and judges be trained and sensitized on, for instance, women and children's property and inheritance rights. Having laws in place are an important first step as without laws there is no recourse for redressing issues. However, it is precisely at the redress stage that the legal process stumbles. Laws need to be reviewed, adapted and at times tightened on behalf of those who could be exploited or left out. At the same time, there needs to be more support for decentralized formal processes enabling village heads or community representatives to take people's complaints simultaneously to local courts as well as to international human rights courts where necessary.

At the same time, legal solutions are effective only if they are socially accepted and enforced. There are countless examples around the world where despite formal law mandating joint titling and registration, women still do not gain equal rights to land. In other words legal reform has to go hand in hand with sensitization, support and enforcement. A focus on the specifically legal aspects of the gap between theory and practice is not always the most helpful way forward. It may be more useful to ask what can be done to bridge the divide between land tenure systems based on absolute private ownership and those based on more complex indigenous frameworks of rights within and of the group.

Ensuring that women understand their rights and securing their tenancy is an important but partial solution. Women have to be involved and engaged within their communities in assessing and effecting practical solutions, and they can only do that once they fully comprehend what is at stake. Communication between and among community groups to raise awareness, to weigh options,

perspectives and local solutions, is the first giant step to be taken. Until women are part of this discourse, they will not be a part of the solution.

Gender-sensitive fund governance, management and delivery

Institutionalized finances, where the bottom line is the rate of return on investment, do not prioritize poor peoples' financing needs and capabilities. However, if considered as clients and customers, poor people, and women especially, would be missed entirely if, for example, investor interests driving climate change investments and financing are not made accountable to factor into their investment decisions socio-economic and environmental returns as well. Investors typically prefer capital intensive 'technological solutions' above all else. Technological preferences and prejudices are embedded in green economy financing,¹⁵⁷ and they do not for the most part differentiate between the specific roles that women and men play. Large proportions of existing funding instruments are primarily driven by 'technological fixes' such as renewable energy systems or incinerator technologies. 'Impact' funding that places more or equal emphasis on socio-economic and environmentally sustainable considerations is more likely to address poor women's and men's interests.

23. SEED SAVERS EXCHANGE – GLOBAL

The Seed Savers Exchange (SSE) is one of the largest non-governmental organizations that conserve plant genetic resources in North America. The SSE keeps a large collection of approx. 16,500 entries. In Australia, the Seed Savers Network has focused on endangered vegetables, fibres, fruits, nuts, beverages, and medicinal plants. Similar community level seed saving initiatives are taking place around the world. Traditional seed banks are by far the most important and effective method of seed supply and seed multiplication for small-scale farmers. Numerically speaking, they likely account for around 70 per cent of all seed stored by small-scale farmers, principally in de facto seed banks. To date, sourcing seed from seed banks has offered clear advantages to farmers. First, most of the seed are the property of the farmers, and their attributes and quality are established. Second, small quantities of seed can usually be obtained from neighbours, if necessary. Third, seed is usually readily available at the required time. Fourth, payment can often be made by a variety of means other than cash. And fifth, they can be a good source of less common, but locally adapted varieties of seed.

Source: Lewis, V. and Mulvany, P.M. 1997. *A Typology of Community Seed Banks*. Chatham and Rugby, UK: Natural Resources Institute and Intermediate Technology.

<http://www.sustainablelivingsystems.org/communityseedbanks.pdf>

Making climate-change funding more gender-responsive would improve its effectiveness and efficiency, as international experience from development programmes have demonstrated. Regarding women as an irrelevant stakeholder group in recipient countries will lead to suboptimal results. While gender considerations are not completely absent in existing climate funds, they have generally been added only as an afterthought. Engendered climate change financing programmes and projects, however, would need to include:

- gender equality as a guiding principle and a cross-cutting issue for all climate finance instruments, and particularly for the envisioned Green Climate Fund;

¹⁵⁷ The World Bank's Clean Technology Fund window under the Climate Investment Fund is a case in point where 'heavy-duty' mitigation technology projects are being given absolute investment priorities.

- public funding in the form of small grant disbursement through local agencies to ensure the most effective way of providing women with finance at a manageable scale. Engaging a range of national and local executing agencies (as opposed to one or more international entities) ensures that communities in remote areas are being reached out to, that funding responses are nimble and responsive to short-term as well as long-term needs, and that there is more accountability at the ground level on what monies were spent by whom and where;
- on-the-ground executing agencies need to meet criteria that specify gender-responsive funding guidelines and requirements – and the agency’s delivery and track record in working with women;
- independent evaluation/ impact analysis should have gender measures incorporated throughout and evaluations should be conducted by community members or their representatives;
- an independent arbitration mechanism and/or inspection panel should be set up and made available to accept submissions from groups – such as the complaints procedure with the UN Special Rapporteur on the Right to Food.¹⁵⁸

In addition to making issue-specific climate financing mechanisms more responsive to women by including a robust set of environmental safeguards and guidelines, several precedents of funds established exclusively to support women’s empowerment do exist and could serve as models for replication. Grant sizes from under \$1,000.00 to approx. \$20,000.00 correspond to the amounts community-based women’s groups currently can responsibly absorb at any one time.

Concluding remarks: A positive momentum to build on

There is some positive momentum to build on, including the international community’s stated commitment to invest more in poor women and their communities. Heads of States and Governments in the 2000 United Nations’ Millennium Declaration resolved, “to promote gender equality and the empowerment of women and to develop and implement strategies that give young people everywhere a real chance to find decent and productive work.”¹⁵⁹ UN Secretary-General Ban Ki-moon, in his report to the Millennium Assembly, highlighted the need to “explore imaginative approaches to this difficult challenge,” acknowledging “Equality for women and girls is not only a basic human right it is a social and economic imperative. Where women are educated and empowered, economies are more productive and strong. Where women are fully represented, societies are more peaceful and stable.”¹⁶⁰

An effective move away from business-as-usual means placing human, social and environmental costs and rewards firmly at the centre of the global economy. The reciprocal relationship between women’s

¹⁵⁸ See for example: www.ohchr.org/EN/Issues/Food/Pages/Complaints.aspx

¹⁵⁹ United Nations Millennium Declaration, September 2000. <http://www.un.org/millennium/declaration/ares552e.pdf>

¹⁶⁰ United Nations. 2010. “More than Basic Human Right, Equality is Social, Economic Imperative, Secretary-General Says in Statement on Creation of ‘UN Women.’” Department of Public Information, 2 July. www.un.org/News/Press/docs/2010/sgsm12991.doc.htm

economic empowerment and economic development is well documented; it now needs to be applied across all sectors. In a green economy framework where business-as-usual is abandoned in favour of sustainable development, women's empowerment cannot be confined to economic measures alone but must be integrated and woven in with a deeper set of social and nature-based values. Human beings, all living creatures and nature itself have an inherent life-value that cannot be reduced simply to economic value parameters.

The hard-won gains that the majority of the world's poor women have made in the last few decades in securing their societal, legal and economic rights are under siege by the intensification and deepening of a market-centred framework and mentality. The property and environmental wealth of the weak is exposed and vulnerable to the agenda and incursions of the powerful. In the face of global competition and the power of finance capital, it is reasonable to argue that poor women simply cannot hold on to their green economy assets: land, water, seed and knowledge. In losing these assets they lose their dignity, their self-reliance and the core of their empowerment. Consequently, their communities suffer and the futures of their children are put in jeopardy.

A vibrant green economy rests on the involvement and engagement of poor people ... "and because women often show more concern for the environment, support pro-environmental policies, and vote for pro-environmental leaders, their greater involvement in politics and in non-governmental organizations could result in environmental gains with multiplier effects across the MDGs".¹⁶¹

¹⁶¹ UNDP. 2011. Human Development Report, op. cit. p. 10

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