A Global Green New Deal
Executive Summary

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EXECUTIVE SUMMARY

Global Crises

In 2008, the world was confronted with multiple crises – fuel, food and financial. The result of these crises has been the worst global economic recession since the Great Depression of the 1930s. In 2009, for the first time in decades, the volume of world trade is projected to decline as global per capita income contracts.[1] The number of unemployed globally could rise this year by between 18 million and 51 million over 2007 levels.[2] Every 1% fall in growth in developing economies will translate into an additional 20 million people consigned to poverty.[3]

Faced with the social and economic consequences of a deepening world recession, it may seem a luxury to consider policies that aim to reduce carbon dependency and environmental degradation. Such a conclusion is both false and misleading.

Opportunity from Crisis

The multiple crises threatening the world economy today demand the same kind of initiative as shown by Roosevelt's New Deal in the 1930s, but at the global scale and embracing a wider vision. The right mix of policy actions can stimulate recovery and at the same time improve the sustainability of the world economy. If these actions are adopted, over the next few years they will create millions of jobs, improve the livelihoods of the world's poor and channel investments into dynamic economic sectors. A "Global Green New Deal" (GGND) refers to such a timely mix of polices.

An expanded vision is critical to the lasting success of a world economic recovery. Reviving growth, ensuring financial stability and creating jobs should be essential objectives. But unless new policy initiatives also address other global challenges, such as reducing carbon dependency, protecting ecosystems and water resources and alleviating poverty, their impact on averting future crises will be short-lived. Without this expanded vision, restarting the world economy today will do little to address the imminent threats posed by climate change, energy insecurity, growing freshwater scarcity, deteriorating ecosystems, and above all, worsening global poverty. To the contrary, it is necessary to reduce carbon dependency and ecological scarcity not just because of environmental concerns but because this is the correct and only way to revitalize the economy on a more sustained basis.

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[1]World Bank. 2009. *Global Economic Prospects 2009.Commodities at the Crossroads.* The World Bank, Washington DC. United Nations. *World Economic Situation and Prospects 2009.* United Nations, New York.

[2] International Labor Organization (ILO). 2009. *Global Employment Trends January 2009.* ILO, Geneva. International Institute of Labour Studies, ILO. 2009.

[3] World Bank. "Global Financial Crisis and Implications for Developing Countries." Paper for G-20 Finance Ministers' Meeting. São Paulo, Brazil. November 8, 2008.

Business As Usual Growth

Once a business-as-usual growth path resumes:

- Global energy demand will rise by 45% by 2030, and the price of oil is expected to rise to US$180 per barrel.
- Greenhouse gas (GHG) emissions will increase by 45% by 2030, leading to an increase in the global average temperature up to 6^{o}C.
- The world economy will sustain losses equivalent to 5-10% of global gross domestic product (GDP) and poor countries suffer costs in excess of 10% of GDP.
- Ecological degradation and water scarcity will increase.
- There will be over 1 billion people living on less than US$1 a day and 3 billion living on less than US$2 a day by 2015.

Given the current fossil fuel dependency of the world economy, once growth resumes, the oil price is expected to rise to US$180 per barrel.[4] The impact will be felt throughout the global economy, but especially by the poor. In 2008, rising fuel prices cost consumers in developing economies US$400 billion in higher energy expenditures and US$240 billion in dearer food. The rise in food prices in 2007 is estimated to have already increased global poverty by between 130 million and 155 million people.[5] Increasing energy prices will do little to alleviate the widespread problem of global energy poverty. Billions of people in developing countries have no access to modern energy services, and those consumers who do have access often pay high prices for erratic and unreliable services. Among the energy poor are 2.4 billion people, who rely on traditional biomass fuels for cooking and heating, including 89% of the population of sub-Saharan Africa, and another 1.6 billion people who do not have access to electricity.[6]

Even if demand for energy remains flat until 2030, just to offset the effect of oilfield decline the global economy will still need 45 million barrels per day of additional gross production capacity – an amount approximately equal to four times the current capacity of Saudi Arabia.[7] But with the resumption of world economic growth on a business-as-usual path, fossil fuel demand is unlikely to stay constant, despite the rise in energy prices. The International Energy Agency (IEA) expects that, by 2030, global energy demand will rise by 45%.[8] Increasing consumption of fossil fuels will worsen

[4] International Energy Agency. 2008. *World Energy Outlook 2008.* Organization for Economic Cooperation and Development and the International Energy Agency, Paris.
[5] World Bank. 2009. *Global Economic Prospects, op cit.*
[6] Modi, Vijay, Susan McDade, Dominique Lallement and Jamal Saghir. 2005. *Energy Services for the Millennium Development Goals.* The International Bank for Reconstruction and Development/The World Bank and the United Nations Development Programme, Washington DC and New York, NY.
[7] International Energy Agency. 2008, *op cit.*
[8] International Energy Agency. 2008, *op cit.*

energy security concerns for carbon-dependent economies, such as increased concentration of the remaining oil reserves in a fewer number of countries, the risk of oil supply disruptions, rising energy use in the transport sector, and insufficient additions of oil supply capacity to keep pace with demand growth.[9]

A world economic recovery that revives fossil fuel consumption will accelerate global climate change. With the resumption of energy demand growth, greenhouse gas (GHG) emissions will also increase by 45% to 41 gigatonnes (Gt) in 2030, with three-quarters of the rise generated by China, India and the Middle East.[10] Without a change in the carbon dependency of the global economy, the IEA warns that the atmospheric concentration of GHG could double by the end of this century, and lead to an eventual global average temperature increase of up to 6°C.[11] Such a scenario is likely to cause a sea level rise between 0.26 and 0.59 meters, and severe disrupt freshwater availability, ecosystems, food production, coastal populations and human health.[12] According to the Stern Review, with 5-6°C warming, the world economy could sustain losses equivalent to 5-10% of global gross domestic product (GDP), with poor countries suffering costs in excess of 10% of GDP.[13] Across all cities worldwide, about 40 million people are exposed to a 1 in 100 year extreme coastal flooding event, and by the 2070s the population exposed could rise to 150 million.[14]

The world's poor are especially vulnerable to the climate-driven risks posed by rising sea level, coastal erosion and more frequent storms. Around 14% of the population and 21% of urban dwellers in developing countries live in low elevation coastal zones that are exposed to these risks.[15] The livelihoods of billions – from poor farmers to urban slum dwellers – are threatened by a wide range of climate-induced risks that affect food security, water availability, natural disasters, ecosystem stability and human health.[16]

Global ecosystems and freshwater sources are also endangered by an economic recovery that ignores environmental degradation. Over the past 50 years, ecosystems

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[9] International Energy Agency. 2007. *Oil Supply Security 2007: Emergency Response of IEA Countries.* Organization for Economic Cooperation and Development and the International Energy Agency, Paris.
[10] International Energy Agency. 2008, *op cit.*
[11] International Energy Agency. 2008, *op cit*.
[12] IPCC. 2007. *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment*. Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva.
[13] Stern, Nicholas. 2007. *The Economics of Climate Change: The Stern Review.* Cambridge University Press, Cambridge, UK.
[14] Nicholls, R.J., S. Hanson, C. Herweijer, N. Patmore, S. Hallegatte, Jan Corfee-Morlot, Jean Chateua and R. Muir-Wood. 2007. *Ranking of the World's Cities Most Exposed to Coastal Flooding Today and in the Future: Executive Summary.* OECD Environment Working Paper No. 1. OECD, Paris. The top ten cities in terms of exposed population are Mumbai, Guangzhou, Shanghai, Miami, Ho Chi Minh City, Kolkata, Greater New York, Osaka-Kobe, Alexandria and New Orleans.
[15] McGranahan, G., D. Balk, D. and B. Anderson. 2007. "The rising tide: assessing the risks of climate change and human settlements in low elevation coastal zones." *Environment and Urbanization* 19(1): 17-37.
[16]Organization for Economic Cooperation and Development (OECD). 2008. *Costs of Inaction on Key Environmental Challenges.* OECD, Paris.United Nations Development Programme (UNDP). 2008. *Human Development Report 2007/2008. Fighting Climate Change: Human Solidarity in a Divided World.* UNDP, New York. Sukhdev, Pavan. 2008. *The Economics of Ecosystems & Biodiversity: An Interim Report.* European Communities, Brussels.

have been modified more rapidly and extensively than in any comparable period in human history, largely to meet rapidly growing demands for food, fresh water, timber, fiber and fuel. The result has been a substantial and largely irreversible loss in biological diversity. Approximately 15 out of 24 major global ecosystem services have been degraded or used unsustainably, including freshwater, capture fisheries, air and water purification, and the regulation of regional and local climate, natural hazards, and pests.[17]

Poor people in developing countries are most affected by the continuing loss of critical ecological services. Nearly 1.3 billion people in developing economies – over a fifth of the world's population – live on lands prone to degradation and water stress or in upland areas, forest systems, drylands and similar fragile environments. Almost half of this population (613 million) consists of the rural poor.[18] For the world's poor, global water scarcity manifests itself as a water poverty problem. One in five people in the developing world lacks access to sufficient clean water, and about half the developing world's population, 2.6 billion people, do not have access to basic sanitation. More than 660 million of the people without sanitation live on less than US$2 a day, and more than 385 million on less than US$1 a day.[19]

Even before the current global economic crisis, it was estimated that, by 2015, there will be nearly 1 billion people living on less than US$1 a day and almost 3 billion living on less than US$2 a day.[20] As noted above, the current recession is likely to increase these numbers significantly. But a world economic recovery program that does not also address directly the problems of energy and water poverty, climate change and ecological risks will have little impact on improving the livelihoods of the poor.

[17] Millennium Ecosystem Assessment. 2005. *Ecosystems and Human Well-Being: Current State and Trends.* Island Press, Washington, DC.

[18] World Bank. 2003. *World Development Report 2003*. World Bank, Washington DC, p. 59. See also Comprehensive Assessment of Water Management in Agriculture. 2007. *Water for Food, Water for Life: A Comprehensive Assessment of Water Management in Agriculture.* Earthscan, London and International Water Management Institute, Colombo, Sri Lanka.

[19] United Nations Development Programme. 2006. *Human Development Report 2006. Beyond Scarcity: Power, Poverty and the Global Water Crisis.*

[20] Based on projections to 2015 of the share of world population living on US$1 a day and US$2 a day in International Labor Organization (ILO). 2004. *World Employment Report 2004-05*. ILO, Geneva and 2015 mid-level projections of world population from Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. 2006. *World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2005 Revision*. United Nations, New York.

A Global Green New Deal

The three objectives of a Global Green New Deal (GGND) are:

- Revive the world economy, create employment opportunities and protect vulnerable groups.
- Reduce carbon dependency, ecosystem degradation and water scarcity.
- Further the Millennium Development Goal of ending extreme world poverty by 2025.

The urgency of an international debate over the need for a Global Green New Deal (GGND) is of paramount importance. Currently, governments worldwide are proposing and implementing US$2 to 3 trillion in additional spending over the next one to two years to revive the world economy. However, very few of these proposals contain all three of the above elements that are essential to a comprehensive GGND.

While the focus of a Global Green New Deal is on policies aimed at reducing carbon dependency and improving the management of ecosystems and freshwater resources, such a strategy is not just about creating a greener world economy. Ensuring the correct mix of global economic policies, investments and incentives can achieve the more immediate goals of stimulating economic growth, creating jobs and reducing the vulnerability of the poor and the long-term aim of sustaining that recovery.

Reducing Carbon Dependency

In high income and large emerging market economies, policies to improve energy efficiency and conservation, expand clean energy supply options and improve the sustainability of transport can create a substantial number of jobs and boost important economic sectors in the short term. Comprehensive proposals for China, the United States, the European Union and South Korea indicate that an ideal opportunity exists to enhance economic recovery through such a low-carbon strategy. The proposed initiatives also illustrate the importance of adopting complementary carbon pricing policies, which should include removing perverse subsidies and other distortions in energy markets.

For example, elements of a "green economic recovery" program proposed for the United States are incorporated into the $787 billion fiscal stimulus plan of the Obama Administration.[21] The full US green economic recovery program calls for a $100 billion initiative over the next two years, equivalent to just over 0.7% of US GDP, which could be paid with proceeds from auctions under a greenhouse gas cap-and-trade program and the elimination of fossil fuel subsidies and tax breaks. The program would create 2 million jobs by investing in four energy efficiency and renewable energy strategies:

[21]Pollin, Robert, Heidi Garrett-Peltier, James Heintz, and Helen Scharber. 2008. *Green Recovery: A Program to Create Good Jobs and Start Building a Low-Carbon Economy.* Center for American Progress, Washington DC.

- Retrofitting buildings to improve energy efficiency
- Expanding mass transit and freight rail
- Constructing a "smart" electrical grid transmission system
- Developing renewable energy, i.e. wind power, solar power, next-generation biofuels and other bio-based energy.

Targeting investments to the above sectors and providing complementary carbon pricing incentives can also generate economic recovery and employment gains in other high income and large emerging market economies.[22]

Economic and employment implications of greening the energy sector:

- Green energy initiatives have the potential to save the US economy an average of US$450 million per year for every US$1 billion invested. In addition, every $1 billion in government spending would lead to approximately 30,000 job-years and reduce annual US greenhouse gas (GHG) emissions by 592,600 tons between 2012 and 2020 – a 20% increase in job creation over more traditional fiscal stimulus measures.
- The renewable energy sector of China has a value of nearly U$17 billion and already employs close to 1 million workers. Further investments in the renewable energy sector and other "clean technologies" could have a major impact on developing new economic growth, expanding exports, and creating employment.
- An immediate and large-scale program to expand energy conservation and renewable energy supply in the European Union (EU) could create 1 to 2 million new, full-time jobs.
- The energy conservation and green building investments that form part of South Korea's Green New Deal amount to 0.5% of GDP, and the full low carbon strategy accounts for 1.2% of GDP. These strategies are expected to create 181,000 and 334,000 jobs, respectively.

economic and employment gains Removal of fossil fuel subsidies eliminates perverse incentives in energy markets and provides an immediate source of financing for low-carbon strategies. Globally around US$300 billion annually, or 0.7% of world GDP, is spent on such subsidies, which are employed mainly to lower the prices of coal,

[22] The sources for the following box are: Houser, Trevor, Shashank Mohan and Robert Heilmayr. 2009. *A Green Global Recovery? Assessing US Economic Stimulus and the Prospects for International Coordination.* Policy Brief Number PB09-3. Peterson Institute for International Economics and World Resources Institute, Washington, DC, February. Renner, Michael, Sean Sweeney and Jill Kubit.2008. *Green Jobs: Towards a Decent Work in a Sustainable, Low-Carbon World.* UNEP/ILO/IOE?ITUC, Geneva.

electricity, natural gas and oil products.[23] Most of these subsidies do not benefit the poor but the wealthy, nor do they yield widespread economic benefits. Energy subsidies in the high income economies of the Organization for Economic Cooperation and Development (OECD) amount to about US$80 billion annually, and subsidies in 20 non-OECD countries total US$220 billion. Cancelling these subsidies would on their own reduce greenhouse gas emissions globally by as much as 6% and add 0.1% to world GDP. The financial savings could also be redirected to investments in clean energy R&D, renewable energy development and energy conservation, which would further boost economies and employment opportunities.

Eliminating fossil fuel subsidies can also benefit low-income economies. For example, energy sector reforms in Botswana, Ghana, Honduras, India, Indonesia, Nepal and Senegal have proven to be effective in leading a transition to more efficient and cleaner fuels that particularly benefit poor households. The economic and employment gains for developing economies of a wide range of low-carbon policies could be significant. Every US$1 invested in improving the energy efficiency of electricity generation can save more than US$3 in investment costs in low and middle income countries, because current efficiency levels are currently much lower in these economies.[24] Small hydropower, biomass and solar photovoltaics (PV) already provide electricity, heat, water pumping and other power for tens of millions of people in rural areas of developing countries. 25 million households depend on biogas for cooking and lighting, and 2.5 million household use solar lighting systems. Developing economies currently account for 40% of existing global renewable resource capacity, 70% of solar water heating capacity and 45% of biofuels production.[25] Expansion of these sectors will not only increase the availability of affordable and sustainable energy services for the world's poor but also provide much needed employment opportunities in developing economies. As Grameen Shakti in Bangladesh has demonstrated, it is possible to disseminate PV solar home systems, biogas facilities and improved cooking stoves to over 200,000 poor households and generate thousands of jobs.

Low-carbon strategies in the transport sector that target the next generation of biofuels, develop fuel-efficient motor vehicles and expand urban public transit and rail networks also have the potential to stimulate growth and create jobs.[26]

[23] United Nations Environment Programme. 2008. *Reforming Energy Subsidies: Opportunities to Contribute to the Climate Change Agenda.* UNEP, Geneva.
[24] As quoted in UN ESCAP 2008, *op cit.*
[25] REN21. 2008. "Renewables 2007 Global Status Report". REN21 Secretariat, Paris and Worldwatch Institute, Washington DC.
[26] The sources for the following box are the various references cited in Barbier 2009, *op cit.*, Boxes 10-12.

Low-carbon transport strategies can stimulate growth and create jobs:

- More than 3.8 million jobs could be created globally through the production of vehicles with high fuel efficiency, hybrid and alternative fuel use and low emission technologies, and up to 19 million additional ancillary jobs worldwide in fuel refining and distribution, sales, repairs and services.
- At least 1.2 million jobs are involved worldwide in biofuel production, but global expansion of next generation feedstocks could easily yield 10 million jobs or more.
- Mass transit systems have significant direct employment impacts globally, accounting for 367,000 workers in the United States and 900,000 in the European Union alone. Investment in public urban transit has also had major secondary employment effects, with a multiplier of 2.5 to 4.1 per direct job created.
- In the United Sates, a 10-year federal investment program in new high-speed rail systems has the employment potential of 250,000 new jobs.
- In South Korea, US$7 billion invested in mass transit and railways over the next three years is expected to create 138,000 jobs.

However, enhancing the economic, environmental and employment gains from a sustainable transportation strategy will require the removal of perverse incentives and the implementation of market-based instruments and regulations. Removal of transport market and planning distortions would contribute to less economic waste, reduce pollution and congestion, foster greater transport choice and facilitate sustainable transport strategies that would boost economic recovery and employment. Fiscal policies, such as fuel and vehicle taxes, new vehicle incentives, road fees, user fees, vehicle insurance and fleet vehicle incentives, can have powerful impacts on encouraging the introduction of cleaner, fuel-efficient vehicles. Combining these policies with regulatory measures, such as more stringent greenhouse gas and fuel economy standards, may produce the most important shifts in vehicle demand and use. Such policies are proving increasingly attractive not only to high-income OECD economies but also to large emerging market economies, such as China and India.

Reducing Ecological Scarcity and Poverty

There is a link between reducing ecological scarcity and improving the livelihoods of the poor. Ecological scarcity is the loss of myriad ecosystem benefits, or "services", as these systems are exploited for human use and economic activity.[27] As

[27] Barbier, Edward B. 1989. *Economics, Natural Resource Scarcity and Development: Conventional and Alternative Views.* Earthscan Publications, London, pp. 96-7.

noted previously, this scarcity problem is accelerating on a global scale, and is manifesting itself in the loss of many ecosystem services that are vital to the poor. As the world economic crisis deepens and expands, it is the poor who are most vulnerable to the consequences, and increasing ecological scarcity adds further to this burden. Thus, a GGND must also tackle urgently the problem of extreme world poverty caused by rising ecological scarcity, as well as implement measures that more directly reduce the vulnerability of the world's poor.

This objective can be accomplished through several pathways.

Most developing economies and the majority of their populations depend directly on exploiting natural resources.[28] For the foreseeable future, primary product exports will remain the main source of export earnings and savings that will facilitate the foreign direct investment, domestic private and public investment and international borrowing necessary for financing economic development. Ensuring sustainable income from primary production is not only essential for generating the necessary savings and revenues in the long run but also important to guarantee that sufficient financial flows are available for investment in the physical capital, infrastructure, skills, health services and educational opportunities necessary for long-term development. Encouraging more primary production from a country's natural resource endowment is not truly sustainable, however, unless it also alleviates the persistence of widespread poverty, especially rural poverty, and improves the economic livelihoods of the large numbers of people concentrated in fragile, resource-poor environments.

Reducing poverty in developing economies requires:

- Policies, investments and reforms to enhance the sustainable and efficient use of natural resources and production processes dependent on them.
- Ensuring that the financial returns from more sustainable activities are re-invested in the industrial activities, infrastructure, health services, and the education and skills necessary for long-term economic development.
- Targeting investments and other policy measures to improving the livelihoods of the rural poor, especially those living in fragile environments.
- Protecting and improving the provision of ecosystem services on which the extreme poor depend.

Three resource-dependent developing economies have shown progress with the first two objectives: Malaysia, Thailand and Botswana.[29] All three countries managed to achieve a long-term investment rate exceeding 25% of GDP and long-run average annual

[28] Barbier, Edward B. 2005. *The Role of Natural Resources and Economic Development*. Cambridge University Press, Cambridge, UK. Barbier, Edward B. 2008. "Poverty, Development, and Ecological Services." *International Review of Environmental and Resource Economics* 2(1):1-27.
[29] See Barbier 2005, *op cit.*

growth rates exceeding 4%, which are investment and growth rates comparable to that of high income economies. Malaysia and Thailand have successfully diversified their economies through re-investing the financial gains from primary production for export. Botswana is a mineral-rich economy that developed favorable institutions and policies for managing its natural wealth and primary production for extensive economy-wide benefits.

Asking national governments of developing economies to implement policies, reforms and investments to improve the sustainability of primary production seems a tall order during a deepening global economic crisis. However, as argued by the World Bank, such a strategy is even more vital for resource-dependent developing economies during a worldwide recession in which private investment flows and trade has declined.[30] The main policy priorities should be improving the sustainability of primary production activities, with the aim of ensuring that they generate sufficient investible funds for diversifying the economy, building up human capital, and investing in social safety nets and other investments targeted at the poor. In addition, the failure to implement such policies worsens extreme poverty in developing economies worse and raises the costs of implementing these measures once economic conditions improve.

There are two ways in which a GGND can improve the livelihoods of the poor.

The first is to provide financing directly, through involving the poor in payment for ecosystem services schemes and other measures that enhance the environments on which the poor depend. Wherever possible, the payment schemes should be designed to increase the participation of the poor, to reduce any negative impacts on nonparticipants while creating additional job opportunities for rural workers, and to provide technical assistance, access to inputs, credit and other support to encourage poor smallholders to adopt the desired land use practices. More effort must be devoted to designing projects and programs that include the direct participation of the landless and near landless.

The second is to target investments directly to improving the livelihoods of the rural poor, thus reducing their dependence on exploiting environmental resources. For example, in Ecuador, Madagascar and Cambodia poverty maps have been developed to target public investments to geographically defined sub-groups of the population according to their relative poverty status, which could substantially improve the performance of the programs in term of poverty alleviation.[31] A World Bank study that examined 122 targeted programs in 48 developing countries confirms their effectiveness in reducing poverty, if they are designed properly.[32]

Targeting the poor is even more urgent during major economic crises. Under-investment in human capital and lack of access to financial credit are persistent problems for the extreme poor, especially in fragile environments. Low income households

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[30] World Bank. "Global Financial Crisis and Implications for Developing Countries." Paper for G-20 Finance Ministers' Meeting. São Paulo, Brazil. November 8, 2008.

[31] Elbers, Chris, Tomoki Fujii, Peter Lanjouw,Berk Özler and Wesley Yin. 2007. "Poverty alleviation through geographic targeting: How much does disaggregation help?" *Journal of Development Economics* 83:198-213.

[32]Coady, David, Margaret Grosh and John Hoddinott. 2004. "Targeting outcomes redux." *World Bank Research Observer* 19(1):61–85.

generate insufficient savings, suffer chronic indebtedness and rely on informal credit markets with high short-term interest rates. Two types of policies and investment programs targeted to the poor are essential in these circumstances. The first is a comprehensive and targeted safety net that adequately insures the poor in time of crisis. The second is the maintenance, and if possible expansion, of long-term educational and health services targeted at the poor. Unfortunately, during financial and economic crises, publicly funded health and education services are often the first expenditures reduced by developing country governments.

Reducing Water Scarcity

If a Global Green New Deal is to have a lasting impact on reducing worldwide poverty and at the same time ensure that the ensuing global economic recovery is sustainable, then the GGND must also include policy measures to address another looming global ecological scarcity problem – the emerging water crisis. There are two aspects of this emerging water crisis: the worldwide scarcity of freshwater supplies relative to increasing demand, and the lack of clean water and sanitation available for millions of the poor in developing regions.

There is a consensus that growing scarcity and competition for water are major threats to poverty alleviation, especially in the rural areas of developing economies, or as UN-Water states, "first and foremost, water scarcity is an issue of poverty."[33] In many economies, including high-income countries, freshwater is routinely wasted and inefficiently used because of considerable distortions and disincentives in the way in which water is allocated. The problem is particularly serious in irrigated agriculture, which uses about 70 to 90% of the world's freshwater supplies. A further complication in water management is that many of the world's important river basins and other major sources of freshwater cross international boundaries.

[33]UN-Water. 2007. *Coping with Water Scarcity: Challenge of the Twenty-First Century.* United Nations, New York, UN Water Day, March 22, 2007.

A Global Green New Deal implemented over the next couple of years should aim to improve water management worldwide, and at the same time contribute to the goal of providing water services to the poor.

Reducing global water scarcity requires:

- Targeting investments and other policy measures to improve the supply of clean water and sanitation services to the poor.
- Removing subsidies and other incentive distortions and implementing, where appropriate, market-based instruments and other measures to improve the efficiency of water delivery and utilization and to manage water demand.
- Facilitate transboundary water governance and cooperation over shared management and use.

A top priority of the GGND must be to revive the necessary investments to attain the Millennium Development Goal of halving, by 2015, the proportion of people in the world without sustainable access to safe drinking water and basic sanitation. The total economic benefits of the global investment in achieving the MDG would amount to about $38 billion annually.[34] The benefits for Sub-Saharan Africa alone would amount to $15 billion annually, which equals approximately 60% of the continent's current aid flows. Other benefits include around 1 million children's lives saved over the next decade as the investments are made, averaging 203,000 fewer child deaths per year by 2015. In addition, there would be 272 million days gained in school attendance as a result of reduced illness from diarrhoea alone. Poor households would also benefit from the income gains from the reduced number of days spent ill, the money savings from less health service use and expenditures on medicines, and the increase time spent on income and productive activities of the household. Across all developing countries, when such wider benefits are included, the return on US$1 invested in clean water and sanitation interventions ranged from US$5 to US$11, and from US$5 to US$28 for some low-cost interventions.

In addition, removing water subsidies and other incentive distortions, adopting market-based instruments and implementing other measure to increase the efficiency of water allocation should be seriously considered by all economies, rich and poor. Improving transboundary water governance and cooperation over shared management and use must also be an important objective of the GGND.

Challenges Facing Developing Economies

Reducing carbon dependency and ecological scarcity through a GGND poses a number of challenges for low and middle income economies, however.

[34] UNDP 2006, *op cit.*

For example, many developing economies face a serious "capital gap" in private and public financial investments that will constrain them from implementing the proposed GGND. Equally limiting is the "skills and technological gap". Most developing economies, with the possible exception of Brazil, China, India, Russia and other large emerging market economies, do not have the research and development (R&D) capacity or the skilled workforce to import and adapt the new skills and technology for many of the proposed investments. Both of these gaps can be overcome by increased financing, but during the current global economic crisis, new financial flows are in short supply. Potential aid flows from donors are likely to be reduced and not increased. The crisis has already curtailed private investment flows, especially to more risky investments with longer term returns. The political will to develop new and innovative financial mechanisms to spur global investments may also weaken.

Trade is an important incentive for some actions proposed under the GGND, but as discussed previously, global trade is projected to decline for the foreseeable future. International commodity prices have also been highly volatile, especially for energy and food, with prices first rising and then falling sharply as the global recession has deepened. Developing economies, particularly those who are highly resource dependent, face balance of payment problems and uncertainty over export and government revenues. Under such conditions it is difficult to implement investments and reforms, such as those required to improve the sustainability of primary production activities, increase health and educational expenditures, develop comprehensive safety net programs targeted at the poor and finance clean energy and transport technologies. The current economic climate also deters the progress needed in the Doha Round of world trade negotiations to support the GGND.

There are also a number of failures in current global governance that may inhibit a GGND. In the absence of a post-Kyoto climate change agreement, there is growing investment uncertainty over the future of the global carbon market and the Clean Development Mechanism (CDM) after 2012. Future Joint Implementation (JI) projects may also be affected. Both uncertainty over future global climate policy and the delay caused by inaction increase sharply the costs of an agreement.[35] Delay in adopting effective climate policies will affect the cost of future agreements that will be required to abate an even larger amount of emissions. Such inaction in the short term increases significantly the costs of compliance in the long term, which is compounded by the effects of uncertainty on investment and policy decisions. Scaling up and reforming the CDM, increasing its coverage of countries to more low-income and Sub-Saharan economies and including more sectors and technologies in the mechanism should also be priorities.

New trade and financial mechanisms are required, and international agreements on transboundary pollution and water management need to be negotiated, as important complements to a GGND. In addition, aid shortfalls seriously limit some of the key GGND measures proposed for developing economies.

[35] Bosetti, Valentina, Carlo Carraro, Alessandra Sgobbi and Massimo Tavoni. 2008. "Delayed Action and Uncertain Targets: How Much Will Climate Policy Cost?" Nota di Lavora 69.200. Fondazione Eni Enrico Mattei, Milan.

Even before the current economic crisis, not only has overall development assistance to poor countries fallen in real terms over the previous decade, but the share of assistance to the water and sanitation sector of developing economies has declined even more. For example, in its 2006 report on water, the UNDP estimated that the sector accounted for less than 5% of development assistance, and aid flows would need to double to bring the MDG within reach, rising by US$3.6 to US$4 billion annually.[36] With the advent of the current economic crisis and the fall in revenues of national governments, addressing the gap in overseas aid for clean water and sanitation in developing economies needs to be a priority of the international community under a GGND.

As a result of the food and fuel crises in recent years, the number of extremely poor was estimated to have increased by at least 100 million. Many of those already poor are slipping even more deeply into poverty; for instance, 88% of the recent increase in extreme urban poverty arose from poor households becoming poorer and only 12% from households falling into poverty. Because of these impacts, the annual cost of lifting the incomes of all of the poor to the poverty line rose by $38 billion or 0.5 percent of developing country GDP.[37] Because the current economic crisis is expected to exacerbate this worldwide problem of poverty, the President of the World Bank, Robert Zoellick, has called for every high-income economy to pledge 0.7% of its stimulus package to a global "vulnerability fund" that would be used to finance in developing economies a comprehensive and targeted safety net for the poor, investments in infrastructure including low-carbon technology projects and support for small and medium-sized enterprises and micro-finance institutions.[38] Similarly, the UN High Level Task Force on the Global Food Crisis has called on donor countries to double financing for food assistance, other types of nutritional support and safety net programs, and for an increase in the percentage of aid to be invested in food and agricultural development from the current 3 % to 10% within five years.[39]

[36] UNDP 2006, *op cit.*
[37] World Bank 2009, *Global Economic Prospects*, *op cit.* World Bank 2008 "Global Financial Crisis and Implications for Developing Countries.", *op cit.*
[38] Zoellick, Robert B. "A Stimulus Package for the World." *The New York Times*. January 22, 2009.
[39] High-Level Task Force (HLTF) on the Global Food Crisis. 2008. *Comprehensive Framework for Action.* July 2008. United Nations, New York.

The South Korean Green New Deal

South Korea has announced a Green New Deal plan that contains many of the national actions of the proposed GGND. At a cost of around U$36 billion over 2009 to 2012, the initiative aims to create 960,000 jobs. It is expected that 149,000 jobs will be created in 2009, mainly in construction. The low-carbon projects include developing railroads and mass transit, fuel efficient vehicles and clean fuels, energy conservation and environmentally friendly buildings. These measures alone will account for over 1.2% of GDP, whereas the full GND plan involves investments of around 3% of GDP.[40]

South Korea's Green New Deal

Project	**Employment**	**US$ million**
Expanding mass transit and railroads	138,067	7,005
Energy conservation (villages and schools)	170,702	5,841
Fuel efficient vehicles and clean energy	14,348	1,489
Environmentally friendly living space	10,789	351
River restoration	199,960	10,505
Forest restoration	133,630	1,754
Water resource management (small and midsize dams)	16,132	684
Resource recycling (including fuel from waste)	16,196	675
National green information (GIS) infrastructure	3,120	270
Total for the nine major projects	**702,944**	**28,573**
Total for the Green New Deal	**960,000**	**36,280**

The Role of the International Community

Several actions are needed at the global level to facilitate national governments to overcome the challenges they face in implementing the GGND strategy and to enhance the sustained economic benefits gained from such policies.

There are three areas in which international actions are needed:

- Promoting global governance.
- Facilitating access to finance.
- Enhancing trade incentives.

Improving global governance is crucial to meeting the financial, trade and policy coordination challenges to implementing the Global Green New Deal. All international

[40]The source of this information and table is from a "Briefing Note for Foreign Correspondents", Ministry of Strategy and Finance, Government of South Korea. January 19, 2009.

fora, and especially the UN system, have a role to play in promoting, developing and enhancing a GGND. The most likely global policy forum for fostering urgent action on the GGND is the G20 group of the world's 20 largest rich and emerging economies. Concerted action by the G20 nations could facilitate key areas of the GGND, such as the proposed actions for reducing carbon dependency, removing subsidies and other perverse incentives, coordinating adoption of market-based instruments, and facilitating transboundary governance of water and other shared resources. In addition, the G20 has emerged as the global forum for coordinating policy action during the immediate economic crisis, and is therefore well placed to consider the proposed GGND as part of its response to the crisis. The G20 could also foster progress in improving aid flows and in facilitating a post-2012 climate change and global carbon market architecture.

A healthy financial system is necessary for the success and effectiveness of the GGND. The international community should therefore adopt as soon as possible reforms to the governance of the financial system that increase transparency and simplicity, and improve the alignment of incentive structures. In addition, bilateral and multilateral aid donors should increase their development assistance over the next few years, and target it to the sectors and actions that comprise the key components of the GGND. Of urgent need is guaranteed financing for the type of vulnerability fund proposed by Robert Zoellick and overcoming shortfalls in the aid necessary to promote clean water and sanitation in developing economies. In addition, the international community should consider developing and expanding innovative financing mechanisms, such as the International Finance Facility, Climate Investment Funds and Global Clean Energy Cooperation, as possible means to fund key components of the GGND.

As more than 90% of trade is financed with some form of short-term credit, insurance or guarantee, maintaining adequate trade flows and their financing is critical to the GGND. New financing facilities also provide a unique opportunity to promote the expansion of trade finance focused specifically on activities advocated for the GGND. There is also an opportunity to mobilize committed trade facilitation financing to enhance the GGND. Support for a GGND requires that trade protectionism be avoided, and that trade liberalization provides opportunities for promoting key sectors, such as limiting fisheries subsidies, reducing tariff and non-tariff barriers on clean technology and services, and reducing agricultural protectionism.

To summarize, the following are the key national and international actions that are required for the proposed GGND.

National Actions Proposed for the Global Green New Deal

1. The United States, the European Union and other high income OECD economies should spend over the next two years at least 1% of their GDP on the national actions proposed for reducing carbon dependency, including removing subsidies and other perverse incentives and adopting complementary carbon pricing policies.
2. The remaining middle and high income economies of the Group of 20 (G20) should aim, as far as possible, also to spend over the next two years at least 1% of their GDP on the national actions proposed for reducing carbon dependency.
3. Developing economies should also implement over the next two years the national actions proposed for reducing carbon dependency. Under the current economic conditions it is difficult to determine how much each economy should spend on these activities.
4. Developing economies should spend at least 1% of their GDP on national actions proposed for improving clean water and sanitation for the poor. They should also develop urgently comprehensive, well-targeted safety net programs and maintain, if not expand, educational and health services for the poor.
5. Developing economies should adopt the other national actions for improving the sustainability of their primary production activities, although under the current economic conditions it is difficult to determine how much each economy should spend on these activities.
6. All economies should consider removing water subsidies and other distortions, adopting market-based instruments or similar measures to increase water efficiency, and facilitating transboundary water governance.

International Actions Proposed for the Global Green New Deal

1. The most likely global policy forum for promoting urgent international action on the GGND is the G20 forum of the world's 20 largest rich and emerging economies, although all international fora, and the UN system especially, have a role to play in promoting, developing and enhancing the GGND.
2. The G20 should coordinate the timing and implementation of the GGND actions recommended by this report, and help develop framework ideas towards securing a global climate change agreement at Copenhagen in December 2009.
3. The international community should reach agreement on extending the CDM beyond 2012, preferably as part of a global climate change agreement, and reforming the mechanism to increase the coverage of developing economies, the sectors and technologies and the overall financing of global GHG emission reductions.
4. The international community should support efforts to improve payment for ecosystem services targeted to the poor and to include more ecosystems, and efforts to improve governance and shared use of transboundary water resources.
5. The international community should adopt as soon as possible reforms to the governance of the financial system that increase transparency and simplicity, and improve the alignment of incentive structures.
6. Bilateral and multilateral aid donors should increase their development assistance over the next few years, and target it to the sectors and actions that comprise the key components of the GGND.
7. The international community should develop and expand innovative financing mechanisms, such as the International Finance Facility, Climate Investment Funds and Global Clean Energy Cooperation, as possible means to fund key components of the GGND.
8. The international community should develop and expand new trade financing and trade facilitation financing packages, and use them to target support to the GGND.
9. The international community should review existing trade agreements and shape future agreements to identify and minimize barriers to enhance effective support of the proposed GGND actions.
10. The international community needs to reach successful conclusion of the Doha Round trade negotiations, especially on fishery subsidies, clean technology and services and reducing agricultural protectionism.

Conclusion

In 2008, the world was confronted with multiple crises – fuel, food and financial. The resulting worldwide recession requires a bold initiative and vision on a global scale. A Global Green New Deal is the necessary response to these challenges.

A GGND is not just about creating a greener world economy. It is about ensuring that the correct mix of economic policies, investments and incentives reduce carbon dependency, protect ecosystems and alleviate poverty while fostering economic recovery and creating jobs. Reviving the world economy is essential, but measures that focus solely on this objective will not achieve lasting success. Only through the national actions and global cooperation envisioned in a GGND will the world sustain its economic recovery by addressing the imminent challenges posed by climate change, energy insecurity, growing freshwater scarcity, deteriorating ecosystems, and above all, worsening global poverty.