

Challenges of the Green Economy Concept and Policies in the Context of Sustainable Development, Poverty and Equity

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THE CONTEXT OF SUSTAINABLE DEVELOPMENT AND GREEN ECONOMY

The “green economy” has become a topic of growing discussion in light of the environmental crisis. It is for example the subject of a major initiative by UNEP, which launched its Green Economy report in February. It has also become a rather controversial term, perhaps because it has become the subject of a multilateral negotiating process, within the Rio-Plus-20 framework. The “green economy” is not a concept that has yet to enjoy widespread agreement (among economists or environmentalists) or an international consensus. It is an extremely complex concept and it is unlikely there can be a consensus on its meaning, use and usefulness and policy implications, in the short term. A “green economy” gives the impression of an economy that is environmentally-friendly, sensitive to the need to conserve natural resources, minimise pollution and emissions that damage the environment in the production process, and produces products and services the existence and consumption of which do not harm the environment.

Among the difficult questions are whether the attainment of such an economy constrains other aspects (including economic growth of poor countries, and social development goals such as poverty eradication and job creation); how to identify and deal with the trade-offs; what are the appropriate combinations between these aspects and at different stages of development as well as stages in the state of the environment; what is the role of the state in regulation and investments and defining frameworks; how compatible is a green economy with the free market and what is the appropriate way to address the role of the private sector; how to build an economy that is more environmentally-friendly, and how to handle the transition from the present to the greener economy?

The Green Economy issue being discussed in the Rio Plus 20 process must also be context specific, or specific to the framework in which it is being discussed. This context is the Rio Plus 20 conference, which is a follow up to Rio 1992. This is explicit in the mandate of the 2012 Conference that refers to “a green economy in the context of sustainable development and poverty eradication”. For this purpose, the green economy is thus not an academic idea for free brainstorming. It must be derived from and rooted in the spirit, objectives, principles and operationalising of UNCED 1992, and especially the Rio Principles and Agenda 21. This should be supplemented by the Rio Plus 10 conference outcomes and commitments.

The main framework of UNCED 1992, its related agreements (UN Framework Convention on Climate Change, UN Convention on Biological Diversity and UN Convention to Combat Desertification) and its follow-up processes is to place the environment together with development in a single context. This is a unique achievement which has to be preserved and advanced, and not detracted from or diverted from.

UNCED was a watershed event that raised hopes a new global partnership to tackle the growing global environment crisis and simultaneously strive for more equitable international economic relations that would be the basis for promoting sustainable development globally and nationally. The unique achievement of UNCED was its generation of awareness and commitments to recognise not only the environment crisis in its many facets, but how this was embedded in economic and social systems, and that a realistic and long-term solution lay in dealing with both the environment and the development crises simultaneously and in an integrated fashion, entailing both international cooperation and national actions. The following are elements of the integrated UNCED framework:

- It recognised the environmental crisis and the need for deep reform of production and consumption patterns. It recognised the sustainability principle, that present production should not compromise meeting the needs of the future. It recognised the precautionary principle.
- It also recognised the “right to development” and the development needs and priorities of economic growth in developing countries plus social development goals including poverty eradication, jobs creation, food, health, education, etc.
- From the recognition of the above, the three pillars of “sustainable development” were accepted as environmental protection, economic development and social development.
- It recognised the need not only for national action but also international policies and actions in understanding and addressing the issues, and that for developing countries national action must be supported by international policies and actions to enable implementation of sustainable development.
- In this context it recognised that countries played different roles in contributing to the environmental crisis, that countries are at different stages of development, and that these must lead to key principles and have important implications for actions and for the international cooperation framework.
- Out of this arose the equity principle of common but differentiated responsibilities. It recognised that the major contribution to pollution (including Greenhouse Gas emissions) and resource depletion was by developed countries, and that developing countries are now disadvantaged because there is little “environmental space” left, which has implications for their future development. In practical terms, there should be a three-prong approach to achieving sustainable development: (1) The developed countries have to take the lead in changing production and consumption patterns (their economic model); (2) Developing countries would maintain their development goals but take on sustainable development methods and paths; (3) Developed countries commit to enable and support the developing countries' sustainable development through finance, technology transfer and appropriate reforms to the global economic and financial

structures or practices (this is why there were chapters on finance, technology, trade, commodities etc in Agenda 21).

- Issues requiring an integration of economic and environmental concerns (such as the interaction of trade and environment; and the relation between intellectual property rights and environmental technology and indigenous knowledge) should be resolved through international cooperation, in which the development needs of the South would be adequately recognised.

If the above principles are to be followed, then the concept of sustainable development would have at least two major components, each balancing the other: environmental protection and meeting the basic and human needs of present and future generations. Thus, sustainable development would not only involve ecological practices that enable meeting the needs of future generations, but a change in production and consumption patterns in an equitable manner whereby resources which are currently being wasted are saved and rechannelled to meeting the needs of everyone today as well as the needs of future generations. Equity among and within countries in the control and use of resources in ecologically prudent ways is a most critical factor.

The centre of the North-South debate and negotiations was conducted in the negotiations on the Rio Declaration on Environment and Development and on the Agenda 21 chapters on financial resources and on technology transfer. The developing countries insisted that the rich and poor countries should not be viewed on similar terms in relation to the causes and burden of resolving environmental problems, but that the North should bear a larger burden of costs and responsibilities due to their larger share in causing the problems and their relatively larger capacity to meet the costs. Eventually, much of the South's arguments and perspectives prevailed, as manifested in several of the Rio Declaration principles, especially Principle 3 that "the right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations", and Principle 7 that "in view of the different contributions to global environmental degradation, States have common but differentiated responsibilities" and that "developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command."

The conference in 2012 to mark the 20th anniversary of the Rio Summit is meant to review the implementation of the Rio outcomes. The review would be on the extent to which the sustainable development objectives have been met, identify the implementation gaps and propose measures for the way forward. As the "green economy" concept is being discussed as part of this process, it must thus be placed integrally within this holistic framework of UNCED, the Rio Principles and Agenda 21. The green economy should have as its basis the environmental imperative, the development (economic and social) imperative and the equity principle that links the environment and development dimensions. The green economy should thus be defined and operationalised in this EDE (environment, development, equity) framework, which must also incorporate both the

national and international dimensions. Objectives, principles, policies, proposals, initiatives, on the green economy should be within this EDE framework.

RISKS OF MISUSE OF THE GREEN ECONOMY CONCEPT

Concerns have been raised by developing countries' delegations that the “green economy” concept may be misused or taken out of context, and that the promotion of the “green economy” concept may give rise of unhelpful or negative developments, and these must be avoided.⁹⁶

One dimensional approach

The first risk is that the “green economy” is defined or operationalised in a one-dimensional manner, taken out of its being embedded in the sustainable development framework, and promoted in a purely “environmental” manner (without considering fully the development and equity dimensions) and without consideration of the international dimension, especially its negative effects on developing countries. In such a situation, if the green economy concept gains prominence, while the sustainable development concept recedes, there may be a loss of the use of the holistic sustainable development approach, with imbalances between the three pillars.

“One size fits all” approach

The second risk is that a “one size fits all” approach is taken, in which all countries are treated in the same manner. This would lead to failures either for environment, development or both. The levels and stages of development of countries must be fully considered, and the priorities and conditions of developing countries taken into account. The principle of common but differentiated responsibility should be respected and operationalised. Thus, in considering various principles, policies and targets, adequate flexibilities and special treatment should be provided for developing countries, such as exemptions, allowance for more lenient obligations, and the provision of finance, technology and capacity building.

Risk of using environment for trade protection

There is a risk that the environment, and by implication the “green economy”, can be inappropriately made use of by countries for trade protectionist purposes, and that in particular developed countries may use this as a principle or concept to justify unilateral trade measures against the products of developing countries. One example are the proposals or plans to impose a “carbon tariff” or “border adjustment tax” on products on the ground that these generated emissions of carbon dioxide during the production process above a certain level, or that the exporting country does not have emission controls of a standard deemed adequate by the importing country. Developing countries are strongly opposed to such trade measures, which is seen as protectionist. This would penalise developing countries that do not have financial resources or access to low-emission technologies, and thus violate the principle of common but differentiated responsibilities.

⁹⁶ These concerns were raised for example at the first preparatory meeting of the Rio Plus 20 process held in May 2010 and at the UNCTAD meeting on the green economy: trade and sustainable development implications in October 2010.

Just prior to the establishment of the WTO and in the few years after its establishment, there was a major debate inside and outside the WTO on the possible role of trade-related environment measures and in particular about the possible use of the concept of “processes and production methods (PPMs).” The PPM concept had been introduced as a means of distinguishing between products by the manner in which the products are made and the environmental effects (for example, the volume of pollution) arising from the production.

The WTO’s non-discrimination principle states that a member shall not discriminate between “like products” from different trading partners, and between its own and like foreign products, thus giving them national treatment. Thus the amount or rate of any taxes or charges on imports cannot be more than what is charged on “like” local products. This raises the issue of what is a “like product” and the related issue of PPMs. Many developing countries are of the view that if two products are “like” because their physical characteristics are similar, they should be treated in a similar way, and that differences in the production processes or methods and the manner in which the production takes place (including the environmental aspects) would not make these products “unlike.” Thus, it would be against the GATT rules to take a trade measure (such as an extra import duty) on a foreign-made product on the grounds that the production method is less environmentally sound.

In 1994, some international environment NGOs proposed to amend GATT rules to enable WTO Members to use trade-related environmental measures (TREMs) to enable import restrictions based on PPMs, and advocated TREMs to promote internalizing the environmental costs of traded goods and setting a “fair price” for a traded product. (Raghavan, 1994a). In contrast, the Third World Network argued that the proposals to legitimize TREMs would add another burden of adjustment to the already-burdened South, and could change the non-discrimination principles of the multilateral trading system and change the basic rules of the game and the conditions of competition under the guise of protecting the environment. (TWN, 1994). The paper described several examples of how these concepts would be difficult or impossible to be implemented and how they would unfairly be biased against the developing countries. It suggested that the initiatives to introduce TREMs and legitimize PPMs in the WTO be abandoned. It proposed instead that any trade measures linked to the environment should be addressed by negotiations for an international treaty and any treaty containing obligations on developing countries must have provisions for technology transfer and financial resources as an integrated contractual obligation (TWN, 1994).

Another method to justify the use of unilateral trade measures is to make use of GATT Article XX, the general exception to the normal GATT rules. Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade, countries can take measures contrary to the GATT rules on certain grounds, including measures “necessary to protect human, animal or plant life or health” and measures relating to the conservation of exhaustible natural resources. In Europe, a few political

leaders have made bold statements, proposing the use of sanctions on imports, on climate grounds. In October 2007, the French President Nicolas Sarkozy said that the EU must examine the possibility of “taxing products imported from countries that do not comply with the Kyoto protocol. We have imposed environmental standards on our producers. It is not normal that their competitors should be completely exempted...Environmental dumping is not fair. It is a European issue that we must raise” (Sarkozy, 2007).

In the United States, a common feature of several climate-related bills introduced in the Congress is the inclusion of a border adjustment mechanism, in which importers will have to purchase “international reserve allowances” to cover the cost of emissions in the imported products. In June 2009, the House of Representatives passed the American Clean Energy and Security Act (also known as the Waxman-Markey bill⁹⁷). The bill obliges the US President to place a charge on importers of certain products that come from many developing countries by 2020. The importers will have to buy “allowances” for the emissions of the products they bring into the country. Several developing countries have voiced their opposition to these proposed trade measures as being protectionist. Although it appears unlikely that a joint House-Senate climate bill will be passed in the near future, it is also most likely that any future bill would contain a border tax adjustment clause.

The use of trade measures with the effect of blocking developing countries’ goods on climate grounds has the potential to deal a severe blow to the multilateral trading system, as well as adversely affect the climate negotiations under the UN Framework Convention on Climate Change (UNFCCC). Many developing countries would consider this as an attempt by developed countries to evade their commitment to assist developing countries, and instead shift the burden of adjustment onto these developing countries.

Attempting to gain market access through the guise of environment

Another risk is that the environment is misused as a disguised method by countries to promote the access of their goods and services into markets of other countries. There is a fear that the Green Economy concept could be used as a front for mercantilist interests. For example, concerns have been expressed by developing countries in the WTO that some developed countries have been attempting to get them to eliminate the tariffs of many of their goods that the proponents claim are “environmental goods.” This follows a mandate in the Doha negotiations to reduce or eliminate barriers to environmental goods and services. The negotiations have been bogged down by the definition of environmental goods, with claims that the list of goods proposed for tariff liberalisation reflects products of export interest to developed countries, whereas developing countries’ products are absent. On environmental services, the list in the proposal covered a wide range, including sensitive sectors, since many of them are public utilities.

The argument that the tariff elimination would benefit developing countries as they can import the products cheaply runs into the same type of criticism regarding proposals for import liberalization in food products. Just as most developing countries promote local food production and thus are against large cuts to their food tariffs, they are against tariff

⁹⁷ See Yu (2009a and 2009b) and Khor (2010b) for details and analyses of the Waxman-Markey Bill.

elimination on environmental goods as they wish to preserve policy space to be able produce these goods and their infant industries would need protection at least initially.

The treatment of subsidies

Another concern of many developing countries is that some developed countries have been providing their companies with major subsidies for the research and development (R&D) of environmentally sound technologies. This puts developing countries at a disadvantage, especially since they lack the financial resources to match the developed countries' subsidies. Given this unfair imbalance in subsidies, the developing countries and their firms would be in an even worse competitive situation if they have to lower their tariffs on environmental products.

Developing countries have also been concerned that government subsidies for research and development had been designated as “non-actionable subsidies” (meaning they are permitted) in the WTO's subsidies agreement, thus enabling countries with the resources to provide enormous subsidies to their enterprises and to give them a competitive advantage, while most developing countries do not have the resources to provide research R&D in significant amounts. This designation expired in 2000. However, while R&D subsidies are no longer allowed when limited to specific enterprises, they are allowed if given to industries across the board. Developing countries have been unable to compete with regard to R&D grants because of their lack of funds, and are also constrained due to the WTO rules from using many other types of subsidies that were used by developed countries when they were in their development phase. An even bigger imbalance is that agricultural subsidies are exempted from the strict rules of the subsidies agreement, and much more lenient treatment is provided to this sector, allowing developed countries to continue to maintain hundreds of billions of dollars of agricultural subsidies each year. The developing countries have proposed as part of the Doha negotiations that the subsidies they provide be considered “non actionable” (i.e. that they be permitted) for certain purposes, including for environmental protection. WTO members were urged to refrain from taking complaints against developing countries while the negotiations on the proposal are taking place.⁹⁸ Amending the WTO rules in this direction would be helpful. However a complaint has been taken against a developing country for subsidies provided to resident companies producing renewable energy

Environmental standards

Another potential problem is the adoption of environmental standards for products; developing countries that are unable to meet the standards face the prospect of losing their exports. The approach towards developing countries should be to provide resources and technology for upgrading their environmental technology and standards, and not to penalise them. The full and effective participation of developing countries in setting international standards is also needed as many important standards are currently “globalised” from those of developed countries without the concomitant support to developing countries to assist them to comply with such standards.

⁹⁸ WTO 2010, para 10.2. See also the discussion on this issue in Section D.

New conditionality

Another risk is that the “green economy” may be used as new conditionality on developing countries for aid, loans, and debt rescheduling or debt relief. This may pressurise affected developing countries to take on one-dimensional environmental measures rather than sustainable development policies that take economic and social development and equity goals into account.

POLICIES AND MEASURES FOR PROMOTING SUSTAINABLE DEVELOPMENT AND GREEN ECONOMY

In operationalising the Green Economy concept, the three aspects of sustainable development (environmental, economic and social) should be incorporated, to obtain a multi-dimensional outcome. The following are some measures and policies that can be taken to promote a more environmentally-sound economy in the context of sustainable development.

Recognising the economic and social value of environmental resources

It is crucial for policy makers and the public to recognise the economic and social value of the environment, that conserving resources such as clean air, water, forests, mangroves etc have positive externalities which are valuable for meeting basic and human needs besides having their intrinsic environmental worth. Conservation should thus be promoted, and there should be investments on rehabilitation of damaged natural resources. Recent studies have compared the benefits of conserving or sustainably using natural resources, with the benefits such as revenues from using or exploiting the resources in a way that maximises short-term profits at the expense of the environment. The recent reports on the economics of biodiversity have compiled many case studies estimating the economic value of mangrove swamps, forests and other natural resources and made the case that conserving the resources often yield more value than converting their use to commercial aquaculture and other activities.⁹⁹ For example, a 2007 study in Southern Thailand on conversion of mangrove into commercial shrimp farms showed net private economic returns of US\$1220 per hectare per year, while the cost of restoration after the pond is abandoned after 5 years of exploitation was \$9318 per hectare. But this was exceeded by the estimated benefits of retaining the mangroves (including for using forest products, providing nursery for fisheries and coastal protection against storms) which totalled US\$12,392/ha (UNEP, TEEB 2009).

Conserving resources and restoring damaged environments and eco-systems

While there are benefits in conserving natural resources, there should also be recognition of the opportunity cost of not “exploiting” or using up the resources. The short term usefulness of using Nature and the short and long term usefulness of conserving Nature (or making use of resources sustainably) should be both recognised and reconciled, and international support should be made available to developing countries in offsetting the opportunity costs.

⁹⁹ The reports give examples of the economic value of forests, mangrove swamps, conservation parks and sustainable fishery practices (UNEP, TEEB 2009).

One interesting proposal from a developing country for sharing the opportunity costs of conserving natural resources is the Yasuni Initiative of Ecuador, in which the country is willing to forgo the benefits of oil revenues in order to preserve a biodiversity-rich large tract of forest. (Khor 2010c). In the proposed scheme, the government would maintain the crude oil field located in the Yasuni National Park indefinitely underground. The international community would contribute half the revenue that the State would have received by extracting the oil, while the government would assume up to half of the opportunity cost of keeping the oil in the ground.

The fund's capital will be invested in renewable energy projects and the interest from the fund would be used to conserve forests, help small farmers reforest and promote energy efficiency and social development.

Public expenditure on restoring damaged ecosystems (such as forests, hillsides and water catchment areas, mangroves) is also important. Damage to the ecosystems has been significant and restoration would reduce the adverse effects and enable the resumption of the environmental functions. However, in many developing countries, there is a lack of financial resources to undertake ecological restoration on the scale needed, and thus international support is necessary.

Enabling prices to better reflect their environmental value, while ensuring access to basic goods and services.

A major challenge in sustainable development (and thus of any green economy initiative) is to reconcile the two principles of allowing prices to better reflect their environmental values, while ensuring access of the public (especially the poor) to basic amenities and basic livelihood opportunities. Thus both the environmental dimension and social dimension has to be incorporated.

The over-exploitation of natural resources, and related wastage, is promoted by the low prices of natural resource-based products such as water and wood. This under-pricing could be due to the prices not being able to incorporate or fully incorporating the cost of adverse side effects during production or because of subsidies, or other factors. The state has the key role to address the failure of market prices reflecting real environmental values. In general, prices should better reflect the environmental values, including the incorporation of the costs of adverse effects. Environmental taxes should be used, as well as pricing policy relating to public services.

However this should be done in a manner that does not penalise the poor and ordinary people, especially when the products or services concerned are essentials. Thus, if water is generally underpriced, then in a revaluing of the price of water provided by the state, a system of differential pricing that is sensitive to ensuring access for the poor could be instituted. The first block of water for households in a quantity essential for family use may be charged at an affordable rate, with higher rates at subsequent blocks; the water supplied to hotels and industries could be at higher rates; and in developing countries community water in poor areas may be provided free. Overall, the price of water should

better reflect their ecological values, while there can be subsidisation for the poor or for essential use.

The removal or reduction of subsidies for environmentally-damaging activities or products has also been strongly advocated. However, this should be undertaken with the principle that it should not affect affordable access of the poor to essentials such as energy or food, or affect their livelihoods adversely. For example, subsidies provided to the fishing industry have contributed to over-fishing and rapid depletion of fish stocks. In the WTO, negotiations are taking place to discipline fishery subsidies. However, many developing countries have argued for exemptions or more lenient treatment be given to them for subsidies that are provided for their fishing sector that is characterised by small-scale and artisanal fisherfolk. In another case, if subsidies for fossil fuels are reduced or eliminated (as being proposed in the G20 process) this should be done in a manner that does not adversely affect the access of the poor to energy.

On the other hand, incentives (subsidies, access to credit, tax breaks, etc) should be provided to producers and consumers to promote good production processes and products (renewable energy, sustainable agriculture, no-emissions cars). For developing countries, subsidies and other incentives are particularly important, since many new industries and practices have to be fostered. Such subsidies should of course be well designed and implemented properly to ensure they meet sustainable development goals.

A potential barrier for developing countries is the subsidies agreement in the WTO, which has considerably reduced the policy space of developing countries on the types of subsidies they are able to provide. The complaint taken against a developing country at the WTO regarding the legality of its subsidies provided for wind energy companies may create an atmosphere of uncertainty to developing countries seeking to promote climate-friendly industries and technologies. Meanwhile, many developed countries provide research and development grants to their companies, the total running into billions of dollars. It is not so clear to many developing countries what kinds of subsidies are permitted and what are prohibited and “actionable”. It appears that many types of subsidies used by developed countries during their development phase are now unable to be used by developing countries in the industrial sector. However, many subsidies are still allowed in agriculture, and these are used mainly by developed countries, which is another imbalance. In view of the imperative of having a transition to a green economy, it is important to review the subsidies rules in the WTO.

In fact, developing countries have proposed that they be given an exemption on some of the prohibited subsidies, including on environmental grounds. As part of the documents that launched the current Doha negotiations, the proposal of developing countries to expand the list of non-actionable subsidies for them was included for consideration.¹⁰⁰ The decision taken by the WTO's 2001 Doha Ministerial Conference was to “take note of the proposal to treat measures implemented by developing countries with a view to achieving legitimate development goals, such as regional growth, technology research and

¹⁰⁰ This decision is contained as para 10.2 in WTO (2001). This point on subsidies and developing countries' proposal is also mentioned in UNCTAD's paper on the Green Economy (UNCTAD 2010).

development funding, production diversification and development and implementation of environmentally sound methods of production as non-actionable subsidies.” It agreed that the issue be addressed as an outstanding implementation issue, and added: “During the course of the negotiations, Members are urged to exercise due restraint with respect to challenging such measures.” As the Doha negotiations are still proceeding, the “due restraint” clause is still in place. This proposal should be taken seriously.

The critical role of the public sector

Besides its regulatory function, the state has also an important role in strategic policy-making in re-orienting various economic and social sectors towards a sustainable development pathway. As argued by UNDESA (2009), developing countries face a vastly more daunting challenge than developed countries and in a far more constrained environment, since much of the atmospheric space has been used up already (and mostly by developed countries).

Can high growth in developing countries can be combined with lowering the emissions trajectory? UNDESA (2009) argues it is feasible because the technologies exist but such a switch entails unprecedented and potentially very costly socio-economic adjustments in developing countries. This switch will require a high level of international support to boost finance, technology and institutional capacity in developing countries, capable of raising investment levels and channelling resources towards lowering the carbon content of economic activity and building resilience to unavoidable climate changes. The mix of market and non-market measures may be different for developed countries (which may give a greater role to market mechanisms, taxes and regulations) and developing countries, which should emphasise public investment and industrial policies, managed by a developmental State.

The level and content of investments influences the rate and content (or composition) of economic growth. The UNDESA report strongly argues that large investments have to be made up-front in new carbon-saving technologies, with the public sector playing a leading role in triggering growth and crowding in private investment along a new development path. Reducing greenhouse gas emissions will require large and interconnected investments across several sectors. Most important is the energy sector: developing countries need to expand energy infrastructure and make energy services widely available at affordable prices especially to the 1.6 billion people (mainly the rural poor) without access to electricity and 2 billion without access to modern energy

Developing countries also need to adopt adaptation measures to avoid or cope with climatic and weather events, which can have devastating effects, as the recent floods in Pakistan, Sri Lanka and many South American countries have demonstrated. These have adverse effects especially on poor communities. Large-scale adaptation projects in both the rural and urban sectors, with significant support from international climate financing, can contribute to job creation and economic growth.

Besides investments, the switch to a sustainable pathway also requires governments to adopt an industrial policy which also incorporates sustainable development principles and

practices. The industrial policy includes selection of sectors to promote in industry (as well as agriculture and services), and includes measures such as subsidies and access to credit to producers, as well as trade and technology policies that are supportive of the production. One specific proposal in the DESA report is the establishment of a global feed-in tariff programme in the energy sector.¹⁰¹ In a feed-in tariff scheme, utility companies are obliged to pay agreed prices or tariffs to renewable energy suppliers and to “feed” the renewable energy into the national grid. This induces investments in renewable energy.

The role of government to address the climate change crisis as described above should also apply to other areas, such as public investment for promotion of biodiversity, conservation and sustainable use of natural resources, and the restoration of degraded resources and ecosystems.

Regulating the Market

Another major issue in considering the “green economy” is the need for regulating markets and corporations. Although the private sector has an important role to play in the shift to sustainable development and to a green economy, they should operate within the framework of government regulation and policies. Markets and companies left to themselves have been unable to take a sustainable development pathway. Indeed, much of the pollution, extraction and depletion of resources in the world have been the result of activities of companies, especially the big companies.¹⁰² Companies have to operate in an intensely competitive environment, with imperatives to minimise costs and maximise profits, with the short-term being the critical horizon. Governments have to establish the frameworks of regulation, incentives and disincentives, so that corporate practices are aligned to environmental, social and developmental objectives. The Stern Report (2006) termed the climate change crisis as “the greatest market failure the world has ever seen.”

Thus, regulation of the private sector, especially the large companies, is important. Regulatory mechanisms such as limits to pollution and emissions, pesticides in food, water contamination, and use of environmental taxes and fines, are thus seen as crucial policy instruments, that should be major or central components to promoting the “green economy”.

However, there is also an increasing trend instead of creating and relying on “markets” whereby companies (and countries) can pollute beyond their assigned limit by buying pollution or emission certificates from other companies or countries. Such markets for buying and selling “pollution rights” are increasingly seen as an alternative to companies or countries having to take their own adequate action, and to pass the action on to others. There is an increasing body of criticisms about this trend, including the avoidance by developed countries and their companies from environmental action, the problems including fraudulent practices in the workings of these markets, the dangers to both the environment and to social development of turning Nature and natural resources into commodities, and dangers of creating new financial speculative instruments. It should

¹⁰¹ Details on feed-in tariff scheme are in DESA 2009 and Hallstrom N. 2011.

¹⁰² See Khor (1995).

thus be recognised that while there is an interest in learning about the use of pricing mechanisms, taxes and payment for entrance of cars into urban centres, there is also a debate on the appropriateness and effects of the use of “markets” for pollution permits or for “offsetting” in the implementation of environmental commitments.

Addressing the link between livelihoods and living conditions of rural communities and the environment.

There is a particularly strong link between the rural poor and the environment. They live close to the natural environment and depend on land, water and forest and marine resources for their livelihoods. Their housing materials and utensils, and sources of water, food and energy, come directly from natural resources. Thus, the deterioration of the natural environment has an almost immediate and drastic impact on their living conditions and livelihoods. Conserving natural resources in places where poor communities live is thus an important component of sustainable development. This environment has been increasingly encroached upon, and the competing use of the resources by commercial interests has often left the poor communities at a disadvantage, with losses to their livelihoods and incomes, and deterioration of their water supply. Examples include indigenous people losing their forests to timber and mining companies undertaking extraction activities; fishing communities losing their mangrove forests due to commercial aquaculture or losing their fishery resources due to over-fishing by large trawling boats or huge fishing ships; and local communities suffering from contamination of their rivers and land by industrial wastes.

The concept of sustainable development and of green economy should incorporate the right of rural communities to a clean environment that enables them to have a sound basis for their livelihoods and their living conditions. A rights based approach is important, that can include the rights to work, to food and health and the new rights to water and sanitation, and the UN Declaration on the Rights of Indigenous Peoples.

Climate change and extreme weather events also affects the poor most severely. The recent series of floods caused by heavy rains in many countries mainly affects those living in rural areas. One of the most serious potential effects of global warming will be the lower productivity of agriculture in developing countries. Sea water rise will also have effects mainly on coastal populations

At the same time, poor rural communities should also be the main beneficiaries of sustainable development, and the green economy. About 1.6 billion people do not have access to electricity, and many rural dwellers do not have access to clean water and sanitation. The degraded resources have also caused a deterioration in their living conditions. Thus, sustainable development and green economy strategies should prioritise policies and projects that benefit them. These include prohibition of activities that damage the environment and livelihoods of the poor communities (unless they are provided with alternative land and housing of equally good quality); restoration of ecosystems; support for sustainable agriculture activities; large government investments in renewable energy, water and sanitation programmes as well as improved education and health services.

On the other hand the interests of poor rural communities should not be adversely affected in the name of the Green Economy. For example local communities should not be forced to leave their homes in the forests when such forests are declared conservation parks. In the building of big hydro-electric dams, now often done in the name of renewable energy, large numbers of forest dwellers have been relocated, often without being given equally good sources of livelihood and living conditions or adequate compensation. Also, biological resources of local communities have been misappropriated either through physical removal of plants, or through patenting of the resources and the traditional knowledge associated with their use; these resources are often converted into “natural” or “nature-based” products.

Addressing Unsustainable Consumption Patterns and the link to Environment, Poverty and Equity

UNCED acknowledged the need to reform existing patterns of consumption and production in order to meet sustainable development objectives, thus leading to the call for measures to lead to sustainable patterns of production and consumption. It recognised the link between poverty and unsustainable patterns of production and consumption. According to Agenda 21 (para 4.3), poverty and environmental degradation are closely interrelated; while poverty results in certain kinds of environmental stress, the major cause of the continued deterioration of the global environment is the unsustainable patterns of consumption and production, particularly in industrialised countries, which is a matter of grave concern, aggravating poverty and imbalances.”

However, while there has been much discussion on making production patterns and systems more environmentally efficient, there has been less focus on consumption patterns. This should be rectified as consumption patterns often drive the pace of production and greatly influence the composition of the good and services produced. A more rational pattern of consumption can result in a more rational pattern of production. Consumption patterns are in turn highly influenced by the distribution of incomes worldwide and within countries. Due to the unequal distribution of income in the world, a large share of goods and services produced are luxuries that the wealthy are able to pay for, while the poor who have needs but are unable to pay lack basic goods and services such as housing, clean water, sanitation, basic education and food.

Agenda 21 understood and acknowledged this point, stating that special attention should be paid to the demand for natural resources generated by unsustainable consumption, and that although consumption patterns are very high in certain parts of the world, the basic consumer needs of a large section of humanity are not being met. This results in excessive demands and unsustainable lifestyles among the richer segments, which place immense stress on the environment. The poorer segments, meanwhile, are unable to meet food, health care, shelter and educational needs. Changing consumption patterns will require a multi-prong strategy focusing on demand, meeting the basic needs of the poor, and reducing wastage and the use of finite resources in the production process. (para 4.5).

Since UNCED 1992, there has not been much progress in changing the unsustainable consumption patterns. In the past two decades, a large part of the world's resources have continued to be channeled towards luxury projects, goods and services, while there has been an alarming increase in the depletion and pollution of the world's natural resources. Much of the discussion on making consumption and production patterns more sustainable has been on reducing the energy and materials used per unit of production, minimising the generation of wastes, and making consumers aware of environmentally sound purchasing choices. These are laudable objectives; however the core problem of income inequality has not been resolved but in many countries it has become more acute, with a larger share of national income accruing to a small percentage of the population.

This has several implications. While there is more potential to increase the productivity per unit of natural resources used, this is done within the same or worse income distribution pattern; thus the rich may consume the same luxury products and services and in larger numbers though each unit may be more energy-efficient. Because of the same distribution pattern, the poor still do not have access to basics. Thus, an improvement in the pattern of income distribution is required if sustainable development objectives are to be met. The equitable distribution of income as a goal becomes more urgent as resources are being depleted to critical levels, and as the "atmospheric" space for Greenhouse Gases is fast vanishing. In this situation of environmental crisis, the irrationality of existing consumption patterns becomes even more evident.

Improving income distribution requires public policy and government intervention, as the market left to itself would continue to produce according to the pattern of demand which in turn is influenced by the pattern of income distribution. At the international level, measures are needed to develop a more balanced and equitable economic, trade and financial system. This has to be accompanied meanwhile by transfers of financial resources and technology, as well as redistributive methods such as ODA. At the national level, measures are needed to foster more equitable patterns of wealth and income distribution, including through land reform, better wages, and a budgetary system of taxes and expenditure oriented to improving the livelihoods and living conditions of rural communities and the urban poor, as well as pro-poor and pro-employment growth.

Food Security, Agricultural Trade, Rules, Rural Livelihoods and Sustainable Agriculture

The integral nature of sustainable development can be shown in addressing the inter-related issues of food, agriculture, livelihoods of the poor, trade policy and the environment. The Green Economy concept has also to address these issues in their complexity. The right to food is an essential human right, and developing countries place importance on food security. The present inflation of food prices to almost record high levels lends urgency to the issue. At the same time, billions of people depend on agriculture for their livelihoods and incomes, while agriculture also has to be environmentally sustainable. Under the advice that food security could be better obtained through importing cheaper food, many developing countries reduced food production. The rising world prices of many food products (and increasing cases of scarcity in world markets) have led to domestic food price inflation and social instability. There is a policy

shift to re-defining “food security” to the traditional concept of greater self-sufficiency and increased local food production. This raises the question of what constitute the barriers to local production and how to remove these barriers.

The decline of agriculture in many developing countries was due to structural adjustment policies, which dismantled institutions and policies that assisted farmers in marketing, credit, subsidies and infrastructure and which drastically reduced agricultural tariffs. Many countries that were net exporters or self-sufficient in many food crops became net importers when local production declined and imports (some of them heavily subsidised) rose. The effects on farm incomes and national food were severe. The high agricultural subsidies in developed countries affect developing countries by enabling cheap exports to penetrate the poorer countries' markets, disrupting local production; by preventing access to the rich countries' markets; and by out-competing developing countries' products in third markets. In 2009 the agricultural subsidies of OECD countries (measured by total support estimate, i.e. subsidies to farm producers, general services support and consumer support) totalled \$384 billion, compared to \$362 billion in 2007. (OECD 2009, 2010). The subsidies enable sale of products at below production cost, enabling exports to developing countries whose applied tariffs had been brought down. Between 1996 and 2002, EU frozen chicken exports to West Africa rose eight fold, due mainly to import liberalization. In Ghana, the half million chicken farmers have suffered from this situation. In 1992, domestic farmers supplied 95% of Ghana's market, but this share fell to 11% in 2001, as imported poultry sells cheaper. (Khor 2008c).

The plight of the small farmers in developing countries should be addressed through domestic policies supporting their agriculture and international trade reform that sufficiently disciplines subsidies in the developed countries, while providing developing countries with special treatment and safeguard mechanisms to promote their small farmers' livelihoods. The WTO rules and the proposed Doha framework, as well as the provisions in many bilateral trade agreements fall short of these goals.

Agricultural reform is also needed to take into account the environment, including climate change. On one hand, climate change is predicted to adversely affect agriculture productivity in developing countries. Countries such as Chad, Ethiopia, Nigeria, Somalia, Sudan and Zimbabwe could lose cereal-production potential by 2080; in Latin America there are generalised reductions in rice yields by 2020; and cereal yields could decrease by 30% by 2050 in South Asia. (Nyong 2009: p 47). According to the report of the IAASTD (Independent assessment of agricultural knowledge, science and technology for development), climate change can irreversibly damage the natural resource base, and increase water scarcity. Extreme climate events (floods and drought) are increasing and are likely to affect food and forestry production. (IAASTD 2008).

On the other hand, agriculture is a major contributor to climate change. Agriculture directly and indirectly contributes 17 to 32 percent of all global human-induced Greenhouse Gas emissions (Greenpeace 2008). Conventional and intensive agriculture characterized by mechanization and use of agro-chemicals and reliance on high external inputs have led to high environmental and social costs that may undermine future food

production capacity. Agriculture has great mitigation potential and is also important for adaptation action.

The IAASTD, an inter-governmental process co-sponsored by many international organisations with over 400 authors, conducted a three-year assessment on agricultural science and technology. It made a critique of conventional industrial farming and called for a fundamental change in farming practices. Its report concluded that the old paradigm of industrial energy-intensive and toxic agriculture is an outdated concept, while small-scale farmers and agro-ecological methods provide the way forward.

A report by the International Trade Centre and FIBL (Research Institute of Organic Agriculture, Switzerland) provides a detailed assessment of the benefits of organic farming regarding climate change. The study concludes that within agriculture, organic agriculture holds an especially favourable position, since it realizes mitigation and sequestration of carbon dioxide in an efficient way. Organic production has great mitigation and adaptation potential, particularly with regard to soil organic matter fixation, soil fertility and water-holding capacity, increasing yields in areas with medium to low-input agriculture and in agro-forestry, and by enhancing farmers' adaptive capacity. Moreover in some areas, organic farming performs better, for example in conditions where there are water constraints. Yields from organic agriculture where water is limited during the growing period, and under subsistence farming, are equal or significantly higher than those from conventional agriculture. The ITC report cites a comparison of 133 studies from developing countries concluded that organic plant and livestock yields were 80% higher than their conventional counterparts, and for crops only the yield increase was 74%. (ITC/FIBL 2008).

Another review of sustainable agriculture practices, covering 208 projects in 52 countries, show that 9 million farmers have adopted sustainable agriculture practices on 29 million hectares in Africa, Asia and Latin America (Pretty and Hine 2001, cited in Lim 2003). Farmers have achieved substantial increases in food production per hectare: 50-150% for rain-fed crops; 5-10% for irrigated crops.

There should be greater priority to adaptation and mitigation measures in agriculture in developing countries. There should be bigger support from governments and international agencies for sustainable agriculture.

The sustainable development framework can usefully incorporate all the various key aspects of the food-agriculture-trade-environment nexus, as described above. It is a test for the Green Economy concept whether it also has the methodology and the conceptual base to encompass the same comprehensive approach.

Strengthening international policies and mechanisms to support developing countries' policies and efforts towards sustainable development.

At the international level, systems and mechanisms should be established or strengthened for developed countries to support and enable developing countries to move towards a sustainable development path. These would include the provision of adequate financing

and technology transfer which includes the promotion of endogenous environmentally-sound technology in developing countries.

Reforms and improvements are needed in the global economic frameworks, structures and processes with the view to enable and support developing countries in the transition to sustainable development processes and models. Reviews and reforms in trade rules (multilateral rules as well as regional and bilateral FTAs) are required, for example, in the areas of reducing developed countries' agricultural subsidies, reviewing industrial subsidies to enable developing countries to promote environmentally-sound practices or products such as renewable energy, establishing appropriate intellectual property rules that enable access to environmental technologies at affordable cost, etc. The issues of finance and technology are further discussed in the next two sections.

TECHNOLOGY DEVELOPMENT, TRANSFER AND COOPERATION

The central role of technology transfer was recognised in the 1992 Rio Summit and its related conventions. It was recognised that technology transfer is required beyond the commercial arena, and a pro-active role of national and international public policy is needed for developing countries to have access to technology. Chapter 34 of Agenda 21 defines environmentally sound technologies as not just individual technologies but total systems that include know-how, procedures, goods and services, equipment and organisational and managerial procedures. It states the principle of the need for favourable access to and transfer of environmentally sound technologies to developing countries through technology cooperation enabling transfer of technological know-how and building up of economic, technical and managerial capabilities for the efficient use and further development of transferred technology.

The UNFCCC also recognises technology development and transfer in several provisions. Despite this, there has been in fact little transfer of climate-friendly technology under the UNFCCC. This implementation gap is sought to be rectified. It was agreed under the Bali Action Plan (adopted in December 2007) that developed countries would provide technology support to developing countries in a measurable, reportable and verifiable manner. An executive committee on technology is in the process of being established under the UNFCCC to address technology transfer issues.

A central aspect of technology development and transfer is the building of local capacity to design and make technologies. Developing countries should be given the chance to climb the technological ladder from the initiation stage, where technology as capital goods are imported; to the internalisation stage, where local firms learn through imitation under a flexible intellectual property rights regime; and the final generation stage, where local firms and institutions innovate through their own research and development (UNCTAD 2007).

Whether IPRs constitute a barrier to technology transfer depends on factors such as whether or not the particular technology is patented, whether there are viable and cost-

effective substitutes or alternatives, the degree of competition, the prices at which it is sold, and the degree of reasonableness of terms for licensing.

According to Agenda 21 (para 34.9), a large body of technological knowledge lies in the public domain (as are not covered by patents) and there is a need for the access of developing countries to such technologies as well as the know how and expertise required to use them. Expanding the space for technologies in the public domain, and to expanding the transfer to developing countries of publicly-funded technologies are thus an important part of the solution. Governments in developed countries spend substantial amounts on R & D programmes, many of which are implemented by the private sector. In addition, governments sponsor a range of R & D that underpin private sector investments in developing environmentally sound technologies (IPCC 2000, page 95). A survey of government R & D funding of environmentally sound technologies in the US, Canada, UK and Korea found that in most countries, governments allocated their rights (patents, copyrights, trademarks etc.) to the recipient research institutions to a significant degree. As a result, the diffusion of climate-friendly technology would “typically be along a pathway of licensing or royalty payments rather than use without restriction in the public domain.” (Sathaye et al 2005).

The IPCC report (2000) calls on OECD countries to influence the flow of such technology directly through their influence on the private sector or public institutes that receive funding from government to be more active in transferring technologies to developing countries. It cites Agenda 21 (chapter 34, paragraph 34.18a) that “governments and international organisations should promote the formulation of policies and programmes for the effective transfer of environmentally sound technologies that are publicly owned or in the public domain.” Products that emerge from publicly funded R & D should be placed in the public domain. Those that are partially funded should be in the public domain to the extent to which it is publicly funded.

At the international level, there can also be public funding and joint planning of R & D programmes. Products and technologies emerging from such publicly funded programmes should be placed in the public domain.

For technologies that are patented, there should be an understanding that patents should not be an obstacle to developing countries' access. Agenda 21 (para 34.10) states that: “Consideration must be given to the role of patent protection and intellectual property rights along with an examination of their impact on the access to and transfer of environmentally sound technology, in particular to developing countries, as well as to further exploring efficiently the concept of assured access for developing countries to environmentally sound technology in its relation to proprietary rights with a view to developing effective responses to the needs of developing countries in this area.” Agenda 21 (para 34.18e) also agreed that in the case of privately owned technologies, measures would be adopted particularly for developing countries, including developed countries creating incentives to their companies to transfer technology; purchase of patents and licenses for their transfer to developing countries; prevention of the abuse of

IPRs including through compulsory licensing with compensation; providing funds for technology transfer; and developing mechanisms for technology access and transfer.

A study on transfer of technologies for substitutes for ozone-damaging chemicals under the Montreal Protocol has given details on how technology transfer to developing countries' firms was hindered by either high prices or other unacceptable conditions imposed by companies holding patents on the chemical substitutes onto companies in developing countries that wanted a license to manufacture the substitutes. (Anderson 2007). Examples include the case of HFC-134a, a chemical used to replace harmful CFC in refrigeration. When Indian companies requested a license from a US company owning the patent for HFC-134a, in order to manufacture the chemical, they were asked to pay a high sum which was far above the normal level, or to allow the US company to own a majority equity stake in a joint venture and with export restrictions on the chemical produced in India; both options were unacceptable to the Indian producers. Korean firms also faced difficulties when they wanted to replace CFCs with acceptable substitutes HFC-134a and HCFC-141b, which had been patented by foreign companies in Korea. "South Korean firms are of the opinion that the concession fees demanded by technology owners represent a lack of intention to transfer the alternative technology." (Anderson et al 2007, pages 262-265); Many of the technology agreements between Korean firms and their partners in Japan and the US contain restrictions such as they are not allowed to consign to a third party, to export and that the improved technologies should be shared.

Under the TRIPS Agreement, there is considerable flexibility provided to WTO member states to grant compulsory licenses, and the grounds to do so are not restricted. In developed countries, there have been many compulsory licenses granted by the government to facilitate cheaper products and technology in the industrial sector. In many developing countries, compulsory licenses have been issued for the import or local production of generic drugs. Thus, compulsory licensing is an option particularly when the patent-holder is unwilling to provide a voluntary license with reasonable conditions.

Some developing countries have previously proposed at the WTO that countries be allowed not to patent environmentally-sound technology so that its transferred and use can be facilitated. The relaxation of the TRIPS rules in the case of climate-related technologies has also been proposed by developing countries in the UNFCCC; however this was opposed by major developed countries. Governments can also facilitate easier access to voluntary licenses. Measures can also be taken to ensure that royalty and other conditions in voluntary licenses are fair and reasonable.

International cooperation is also needed to establish programmes that support developing countries to assess their technological needs in different sectors; to assess the appropriateness of various technologies, taking account of the environmental, safety, social and economic aspects; to identify the obstacles to the development or transfer of these technologies; and to devise policies and measures to overcome the obstacles. A network of technology experts in various areas should be made available to advise developing countries. Technology funds should be established, including under relevant

conventions such as the UNFCCC and CBD, as well as in the social and development areas, to finance technology development and transfer.

Agenda 21 also has many useful proposals and decisions, including establishment of a collaborative network of research centres, support for cooperation and assistance programmes, and building capacity for technology assessment, and collaborative arrangements. These should be revisited as part of the Rio Plus 20 process.

As discussed earlier, the development and deployment of environmentally-sound technologies requires a strong and dedicated programme at the national level, with significant public investments in developing countries, for projects such as feed-in tariffs to enable large-scale development and use of renewable energy. Due to the limited resources of developing countries, a significant part of the financing for such technology programmes should be from international funds.

FINANCING OF SUSTAINABLE DEVELOPMENT

The Rio Summit and its Agenda 21 gave a critical place to financing as one of the two key means of implementation of sustainable development objectives. The rationale for international financing was agreed to and clarified in Agenda 21. Economic growth, social development and poverty eradication are the first and overriding priority in developing countries and are themselves essential to meeting sustainability objectives. In light of the global benefits of implementing Agenda 21, providing finance and technology to developing countries will serve the common interests of developed and developing countries and humankind in general, including future generations. Without these means of implementation, it will be difficult for developing countries to fully implement their commitments. The cost of inaction could outweigh the financial costs of implementing Agenda 21 and inaction will narrow the choices of future generations. (UNCED para 33.3).

The UNCED Secretariat estimated the additional estimated average annual costs (in 1993-2000) of implementation in developing countries were over \$600 billion, and of this total the Secretariat estimated that \$125 billion would be from international cooperation in grant and concessional terms. (UNCED, para 33.18). The outcome, as reflected in Agenda 21, was that developed countries make financial commitments to give effect to the UNCED decisions, with developing countries drawing up national sustainable development plans, and a regular review and monitoring be conducted on the adequacy of funding and mechanisms, including efforts to reach the targets. (UNCED, para 33.21). UNCED agreed that substantial new and additional funding for sustainable development and implementing of Agenda 21 will be required. The key outcome was that developed countries reaffirmed their commitments to reach the UN target of 0.7 per cent of GNP for ODA as soon as possible, with some agreeing to a 2000 deadline. Those countries that have already reached the target were commended and urged to make additional contributions, while other developed countries agreed to make their best efforts to increase their ODA level. (UNCED, para 33.13).

The finance issue also figures prominently in other related processes. Under the UNFCCC developed countries committed to provide financial resources, including for technology transfer, needed by developing countries to meet the agreed full incremental costs of their mitigation measures (article 4.3) and to also meet the costs of adaptation (article 4.4). The extent to which developing countries will implement their commitments will depend on the effective implementation by developed countries of their finance and technology transfer commitments, and will take fully into account that economic and social development and poverty eradication are the developing countries' first and over-riding priorities. (Article 4.7)

Under the UN Convention on Biological Diversity (CBD) developed countries committed to provide new and additional financial resources to enable developing countries to meet the agreed full incremental costs to them of implementing measures to fulfill their CBD obligations. The implementation of the finance commitments shall take into account the need for adequacy, predictability and timely flow of funds and the importance of burden sharing among the contributing Parties. (Article 20.2) The extent to which developing countries will implement their CBD commitments will depend on the effective implementation by developed countries of their finance and technology transfer commitments and will take fully into account the fact that economic and social development and eradication of poverty are the first and overriding priorities of the developing countries (article 20.4).

The monitoring and implementation aspects of the finance obligations have been weak. The 1989 proposal in the UN General Assembly resolution mandating UNCED to consider a technology fund did not materialise. Most developed countries have not yet reached the 0.7% ODA target and funding for sustainable development activities remains far from adequate.

In recent years, negotiations at the UNFCCC have seen movement on the issue of financial resources for climate change. Decisions at the meeting of the Conference of Parties in Cancun in December 2010 included noting the developed countries' commitment to provide new and additional resources approaching \$30 billion in 2010-2012, and recognised that developed countries commit to a goal of mobilising \$100 billion a year by 2020 to address the needs of developing countries. A decision was taken to establish a Green Climate Fund under the UNFCCC; the Fund will be designed in 2011 by a transitional committee.

At the Nagoya meeting of the Conference of Parties to the CBD in November 2010, a Strategic Plan (2011-2020) was adopted. Many finance-related issues remain to be resolved, including the size of resources needed not only for climate-related activities but also those in other areas such as addressing biodiversity, toxic substances and wastes, water and energy, as well as social sectors. (Chee 2010).

The scale of financing required by developing countries for climate mitigation and adaptation activities has been estimated at several hundreds of billions of dollars a year, or even a trillion dollars and more. In a review of various estimates of mitigation costs,

UNDESA (2009: p154-155) found the range of over \$400 to \$1,200 billion annual additional cost of mitigation strategies for the world and over \$200 bil to almost \$1,000 billion for developing countries, for a scenario of limiting Greenhouse Gas concentration to 450 ppm. The World Bank (2010) estimated in developing countries mitigation would cost \$140-175 billion a year over the next 20 years, with associated financing needs of \$265-565 billion, with a 450ppm scenario. For adaptation, a World Bank adaptation report estimates the annual cost between 2010 and 2050 of \$75-100 billion a year. A more comprehensive study by scientists led by Martin Parry (2009) that includes the adaptation costs in more areas has far higher estimates (\$400-600 billion).¹⁰³ Given these estimates, the volume of funds mentioned for mobilization (\$100 billion annually by 2020) is far from adequate, especially when taking into account the finance-related commitments of developed countries in the Climate Convention, including payment for the agreed full incremental costs of mitigation measures.

There are also other costs required to be met besides that for climate change. At the Nagoya meeting of the Conference of Parties to the CBD in 2010, there was no agreement to establish specific targets for financial resources mobilisation, although the G77 and China proposed specific figures with time lines. It was agreed to develop and apply methodologies for assessing gaps and needs, as well as progress in the increase in and mobilisation of resources against several indicators that were adopted (including aggregated financial flows of biodiversity-related funding and flows from various sources to developing countries). (Chee 2010).

With the big gaps still between what is required and what has been committed, major efforts are needed to mobilise and channel the sufficient financial resources towards sustainable development activities.

The UNDESA report on climate and development (UNDESA 2009: p151-183) reviews methods to “crowd in” private sector financing (through cap and trade, carbon taxes, sources of green investment and consumer financing; and proposals for public sector international cooperation financing (including mandatory assessed contributions by developed countries into a fund; revenue from global auctioning of emission permits; a global carbon levy; and revenues from carbon offsetting schemes. The November 2010 report of the UN Secretary General's high-level advisory group on climate change financing concluded it is challenging but feasible to mobilise \$100 billion a year by 2020 to address the needs of developing countries (United Nations 2010). It examined many various sources of funds ranging from offset levies to direct budget contributions based on assessed contributions.

An important issue not in the list is the use of Special Drawing Rights (SDRs) for purposes of supporting developing countries for sustainable development activities. The G77 and China proposed that there be periodic issuance of SDRs, during the preparation for the UN Financial Crisis conference of 2009. This should be considered further, especially in a period when government budgets in developed countries are coming under stress, affecting the ability or will to increase budgetary support to developing countries.

¹⁰³ For details of these cost estimates for climate mitigation and adaptation, see Khor (2010a).

Developing countries in various fora, have insisted on the principle of “adequate, new and additional” international financial resources for environment activities, especially those with global benefits, or those activities that have to be undertaken although the environmental problem is mainly caused by factors external to the country, like adaptation to climate change. It is important that estimation be continuously be made and updated on the scale of funding that is required by developing countries for sustainable development activities, and that a proper system be established for the reporting of developed countries' implementation of committing “new and additional financial resources”. The funds should not be from existing resources earmarked for other activities, such as health-care or education, for this would deprive other worthy sectors of their funds. This is because development should not have to make way for the environment. The criteria for “new and additional” should be clarified and a system be set up for monitoring the flow of resources, to be measured against what is required and what has been pledged. The decision in the UN Framework Convention on Climate Change (UNFCCC) for the transfer of finance and technology to be subject to being “measurable, reportable and verifiable” should be followed up by establishing such a system of continuous monitoring, measurement, reporting and verification. This should be done in other areas of the environment, as well as development.

Developing countries also stress the importance of the predictability of funding, whose flows and volumes should not have to be dependent on variable or volatile factors. The funds should not be attached to unrelated and unnecessary conditionalities, nor tied to cumbersome and expensive bureaucracy which delays the disbursement, or go through agencies which adds to the costs and bureaucracy detracts from the amounts received from recipient countries. In the financial flows, and especially if there are new multilateral funds, the governance should be democratic, with developing countries having an equitable share in the decision-making bodies. There should be adequate safeguards and technical capacity to ensure the accountability and proper use of funds.

Developing countries generally also prefer funds sourced through the public sector, in a predictable manner, and that is non-debt creating. This is to avoid new indebtedness arising from environment or social sector activities, as it is difficult for such activities to earn net revenues that enable sustainable debt servicing. For example, in discussions on climate change, it is widely recognised that adaptation activities in general should be funded by grant-type payments rather than loans, as there is little or no commercial gain possible from most adaptation activities. There are concerns that if these non-commercial activities are financed through loans, they may add on to the countries debt burden and contribute to loan-related difficulties. Regarding financing through the carbon markets, several developing countries and many civil society groups have several concerns, including that this facilitates offsets that enable developed countries to pay for pollution rights and escape from having to reduce their own emissions; that the system is open to fraudulent activities; the creation of financial markets for carbon leads to new opportunities and manifestations of financial speculation in which the carbon price reflects the state of speculation and in which there is unpredictability and volatility not

only in the price but the activities being funded; and concerns about the unethical and social implications of the “commoditization of nature.”

The developing countries have often proposed in fora that discuss or negotiate on environmental and social issues that funding should mostly be from public sources, and in non-loan form, in which budgetary allocations could be supplemented by innovative taxes such as a financial transactions tax and a levy on airline tickets. If the financing is for activities that are commercial in nature, the non-loan component may be mixed with loans on a concessional basis, which could possibly leverage market loans.

The issue of financing sustainable development and the transition to a green economy is not restricted to ODA or the transfer of funds through various Conventions. It is also linked to other issues in the global economy which greatly influence the amount and volatility of the flow of financial resources to developing countries. These issues include external debt, the terms of trade, trade policies and performance, commodity prices, volatility in the international flows of funds, and reform of the international monetary and financial system. Many of these issues were dealt with in the 1992 Rio process, and are included in Agenda 21, because of the understanding that they are an integral part of the sustainable development framework. These issues also form Goal 8, a global partnership for development, of the Millennium Development Goals. Thus, issues in the global economic, trade and finance systems are an important and integral part of the sustainable development framework, and should similarly be an essential part of discussions on the green economy. In particular, greater financial resources can be made available to developing countries through better terms of trade, development-oriented trade policies, corrections to the imbalances in the multilateral trading system, debt relief to developing countries facing debt-related difficulties, a more development-oriented intellectual property system, and appropriate reforms to the international financial and monetary system.

CONCLUSIONS

There are many challenges and obstacles facing developing countries in moving their economies to more environmentally friendly paths. On one hand this should not prevent the attempt to urgently incorporate environmental elements into economic development. On the other hand, the various obstacles should be identified and recognised and international cooperation measures should be taken to enable and support the sustainable development efforts. The conditions must be established that make it possible for countries, especially developing countries, to move towards a “green economy.” The main conditions and dimensions have been recognised in the negotiations that led to Rio 1992, and are well established in the Rio Principles and in Agenda 21. The treatment of the “green economy” in Rio Plus 20 should be consistent with the sustainable development concept, principles and framework, and care should be taken that it does not detract or distract from “sustainable development”. Thus the “value added” to the Green Economy as contrasted to sustainable development should be identified. Care has to be taken to ensure that the “green economy” term and concept is also understood to include the social, equity and development dimensions, including the need for international

provision of finance and technology and accompanying global economic reforms and that the risks of the misuse of the term are adequately addressed.

REFERENCES

Anderson, Steven, K. Madhava Sarma and Kristen Taddonio. 2007. *Technology transfer for the ozone layer: lessons for climate change*. London: Earthscan.

Bhatia, Ujal Singh (2008). *The climate, trade and technology linkage*. Statement of India's Ambassador to the WTO at the TWN briefing session on climate and trade. 17 Oct. 2008.

Brainard, Lael, Abigail Jones and Nigel Purvis (editors). 2009. *Climate change and global poverty*. Washington D.C.: Brookings Institution Press.

Chee Yoke Ling. 2010. "Biodiversity Convention adopts landmark decisions", in *Third World Resurgence*, Oct/Nov. 2010.

Dow Jones Newswires (2008). USTR Schwab warns of trade war potential of CO2 laws, 5 March 2008.

Greenpeace International. 2008. *Cool farming: climate impacts of agriculture and mitigation potential*.

IAASTD. 2008. *Executive summary of the synthesis report of the international assessment of agricultural knowledge, science and technology for development (IAASTD)*.

IPCC, 2000. *Methodological and technological issues in technology transfer*. Geneva: Intergovernmental panel on climate change, Geneva.

ITC and FiBL. 2007. *Organic farming and climate change*. Geneva: International Trade Centre.

Khor, Martin. 2011. *Preliminary Notes on the Green Economy, in the context of sustainable development*. Statement at the panel on Green Economy at the Inter-sessional session on Rio Plus 20 on 10-11 Jan 2010

Khor, Martin. 2010a. *The equitable sharing of atmospheric and development space: some critical aspects*. South Centre Research Paper 33. Geneva: South Centre.

Khor, Martin. 2010b. *The climate and trade relation: some issues*. South Centre Research Paper 29. Geneva: South Centre.

Khor, Martin. 2010c. "Leaving oil in the ground to fight climate change." Article in *The Star (Malaysia)*, 20 Sept. 2010.

Khor, Martin. 2008a.. Some Key Points on Climate Change, Access to Technology and Intellectual Property Rights. Paper presented at European Patent Office conference on climate change and IPR policy. Penang: TWN.

Khor, Martin. 2008b. Food Crisis, climate change and the importance of sustainable development. Penang: TWN.

Khor, Martin. 2008c. The impact of trade liberalization on agriculture in developing countries: the experience of Ghana. Penang: TWN.

Martin Khor. 2008d. “Trade Ministers propose more intensive trade-climate engagement”, *TWN Bali News Updates and Climate Briefings*. Penang: TWN.

Khor, Martin. 2003. Sustainable agriculture: critical ecological, social and economic issues. TWN briefing paper 5, June 2003).

Kommerskollegium (2009). *Climate Measures and Trade: Legal and Economic Aspects of Border Carbon Adjustment*. National Board of Trade Sweden.

Lim Li Ching. 2003. Sustainable agriculture is productive (TWN briefing paper 8, July 2003).

Lim Li Ching. 2008. Overhaul of agriculture systems needed, says new report.

Nyong, Anthony. “Climate change impacts in the developing world: implications for sustainable development”, chapter in in Brainard et al (2009).

OECD. 2009. Agricultural policies in OECD countries: monitoring and evaluation. Paris: OECD.

OECD. 2010. Agricultural policies in OECD countries, at a glance. Paris: OECD.

Parry, Martin et al. (2009). Assessing the costs of adaptation to climate change. UK: IIED and Grantham Institute for Climate Change.

Press Trust of India (PTI) (2009). India hits out at developed nations on climate change. *Press Trust of India*, 16 March 2009.

Pretty, Jules and Richard Hine. 2001. Reducing food poverty with sustainable agriculture: a summary of new evidence. Centre for Environment and Society, Essex

Raghavan, Chakravarthi (1994a). Green protection, eco-protection and TREMS. *SUNS*, 3 Mar. 1994.

Sarkozy, Nicholas (2007). Speech of the President of France to the French National Assembly on the issue of climate policy.

Sathaye, Jayant A., Stephane De La Rue du Can and Elmer C. Holt (2005). *Overview of IPR Practices for Publicly-funded Technologies*, Environmental Energy Technologies Division, Ernest Orlando Lawrence Berkeley National Laboratory. 31 October 2005.

Shahin, Magda (1997). *Trade and Environment in the WTO: A review of its initial work and future prospects*. Penang: TWN.

Shashikant, Sangeeta and Martin Khor. 2010. Intellectual property and technology transfer issues in the context of climate change. Penang: TWN.

South Centre (2007). Repackaging old positions: the "bold new" US_EU proposal on trade liberalisation of climate-friendly goods and services. Informal Note. Geneva, 5 Dec. 2007.

South Centre, 2009. "India, G77 propose text against trade protection in Copenhagen draft" in *South Bulletin*, 10 Sept. 2009.

Stilwell, Matthew (2008). Improving institutional coherence: Managing interplay between trade and climate regimes. Global Economic Governance Programme Working Paper 2009/49, University College, Oxford. Oxford: Department of Politics and International Relations.

Third World Network (TWN) (1994). Trade and environment: position paper of the Third World Network.

UNCED. 1992. UN Conference on Environment and Development: Agenda 21. New York: United Nations.

UNCED. 1992. Rio Principles on Environment and Development. New York: United Nations.

UNCTAD. 2010. The Green Economy: Trade and Sustainable Development Implications. Geneva: United Nations.

UNCTAD. 2007. The least developed countries report 2007. Geneva: United Nations.

UNDESA, 2009. World Economic and Social Survey 2009: Promoting development, saving the planet. New York: United Nations.

UNEP, 2009. The economics of ecosystems & biodiversity: TEEB for policy makers.

UNEP, 2010. The economics of ecosystems & biodiversity. Mainstreaming the economics of nature.

United Nations. 2010. Report of the Secretary-General's high-level advisory group on climate change financing. New York: United Nations.

United States and European Commission (2007). *Summary of U.S. and EC Proposal for Liberalizing Trade in Environmental Goods and Services in the WTO DDA Negotiations*. Paper presented to WTO's Committee on Trade and Environment.

Watal, Jayashree (1998). *The Issue of Technology Transfer in the Context of the Montreal Protocol: Case Study of India*.

World Bank. 2010a. The costs to developing countries of adapting to climate change. Washington DC: World Bank.

World Bank. 2010b. World Development Report 2010: Development and Climate Change.

World Trade Organisation. 2001. Decision on implementation-related issues and concerns. Document WT/MIN(01)/17, adopted by the Doha Ministerial Conference, 14 Nov. 2001. Geneva: WTO.

Yu, Vice (2009a). Competitiveness, trade and climate change linkages: Developing Countries' perspectives. *South Bulletin*, 10 Sept. 2009.

Yu, Vice. (2009b). New climate protectionism: analysis of the trade measures in the US climate bill. *South Bulletin*, 10 Sept. 2009.