Twelve Theses

Sustainable Development Agenda for Climate Change

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1 Climate change is real, will define the global agenda for generations to come, and is on a collision course with development

There is no controversy whatsoever among serious scientists that climate change is already happening, that it has been caused by human activities, and that it poses the gravest of threats to lives and livelihoods on this planet. Under current trends, all the great rivers fed by the Himalayan glaciers (including the Indus, Ganges, Brahmaputra, Mekong, Thanlwin, Yangtze) could become seasonal rivers by 2035, and this would debilitate food production that supports over 1.2 billion people. Other concrete threats are the melting of the Greenland and Antarctic ice sheets, which would raise sea levels, affect the thermohaline current, influence weather patterns, and submerge small islands.

This is not transient problem. It cannot be resolved in a few years or even decades. Even with the best will in the world, it will take at least a hundred years of extreme adjustments to set the economy on a sustainable pathway. Even after this adjustment period, great prudence would be required to ensure that future sustainability is not threatened. For the three or four generations that will come of age in the 21st century, climate change will provide the backdrop for all human activity. An important corollary is that other pressing human needs, such as economic development in poor countries, cannot be placed on the back burner while this one is being resolved.

In the absence of visionary global leadership, there is a fundamental conflict between climate stabilization and economic development. The rise of the industrial age is based primarily on the energy revolution produced by the sudden increase in capacity to harness fossil fuels. Without fossil fuels, no industrial revolution; but equally, although recognized belatedly, without fossil fuels no human-induced climate chaos. Historically, one out of every three ounces of carbon unearthed from the ground has ended up in the atmosphere, increasing the concentration of carbon, and precipitating a cascade of downstream changes. However, the benefits of the unearthing the fossil fuels are still distributed extremely unequally, and have yet to reach roughly half of the global population. More broadly, the entire physical infrastructure and corporate mosaic of the modern world is founded on the extraction and use of fossil fuels. Disabling this system would derail the growth process for decades if not centuries.

2 The development agenda cannot be deferred or sidelined

The unfinished agenda of development is the other critical challenge facing human society, of the same level of gravity as climate change. The grotesque inequality in global incomes—the average income of the richest 20 per cent of the world's population is 16 times that of the remaining 80 per cent, and 90 times that of the poorest 20 per cent—is correlated directly with the inability of billions of people to meet their basic needs, and with their governments to protect their human rights. Within nations, such extremes have often led to political crises, conflict, war, and even revolution. Growing indications of disfunctioning (terrorism, civic conflict, hostility to globalization) suggest that the arena of conflict has now become global. Short of a global revolution, the only sure solution to this inequality is sustained growth in developing countries. This makes it urgent to ensure that the current growth momentum of emerging countries (especially in Asia) be maintained, and that barriers to growth in slower growing regions be removed. This agenda will also take much of this century to resolve. Because of its ethical, political, and security implications, this agenda cannot be deferred or sidelined.

3 The "separate but equal" treatment of climate and development has failed miserably

The current approach to climate and development has been to place them in separate boxes. The tacit bargain is a symmetrical one: development is viewed as the responsibility mainly of developing countries, with industrialized countries providing a little help voluntarily, while climate stabilization is assigned mainly to industrialized countries, again with a little voluntary assistance from developing countries. This is clearly a failed option.

The only feasible solution to the climate threat is to treat it as an integral component of the global development agenda.

4 There are no costs of climate stabilization in rich countries

The climate literature has shown how the impacts of future climate change will be distributed unequally, the bulk of the burden to be borne by poorer countries, small island states, and poor and vulnerable populations. What has been less prominent in the analyses is the fact that the costs of stabilization are also distributed unequally.

Given prudent policy making, there are no costs of reducing emissions in rich countries! The reason is very simple. The traditional estimation of costs assumes a fixed investment budget in order to ask what needs to be given up for the sake of investing in emissions reduction. This is a static analysis of welfare. In a dynamic context, welfare costs are determined not by (the unknown) impact of hypothetical investments, but by whether a climate regime is consistent with full employment and price stability. This is not an issue of costs, but of competitiveness and professionalism in macroeconomic management. First, if all rich countries have to undergo more or less the same transition, this will level the competitiveness field enormously. Second, considerable learning took place in rich countries after the oil price shocks of the 1970s on macroeconmic management in the face of long term structural change. Whether or not such adjustment imposes welfare costs depends less on the source of change than on two key elements of policy: engineering a soft landing, and investment in worker retraining. If adjustment is phased in gradually and is accompanied by

support for worker mobility from sunset to sunrise industries, the costs would be minimal at most.

The challenge for developing countries is entirely different, since their overriding policy priority is economic growth, which entails expanding the reach of energy and infrastructure and making it available betond small minorities of their populations. This means increasing the demand upon energy resources in particular and natural resources in general. Re-orienting this growth trajectory requires far more than prudent macroeconomic management. Indeed, it may require investing in new infrastructure, new capacities, and new institutions.

The upshot is that while stabilization need not impose any welfare costs on rich countries, it will impose welfare costs on developing countries, unless offset by a focused investment program.

5 Current climate policy framework is inimical to development

An unintended consequence of the tacit bargain over climate and development—separate but equal—is the fact that climate policy options have developed mainly in rich countries. The resulting actions, whose overarching framework is the global cap-and-trade system, seeks mainly to create a global carbon market. However, this entire approach is rooted in the institutional capacities, policy experiences, and economic conditions of rich countries. Another problem with the current policy orientation is that by starting from the baseline of current emissions, it gives a built in edge to high emitting industrial countries.

While there are several important criticisms of the cap and trade approach (the bottom line being that emissions have continued to rise in spite of the fanfare over policies), it is possible that they will become more effective in rich countries once proper targets with teeth are adopted. They are consistent both with the monitoring and regulatory capacity of industrialized countries and with their key agenda, which is to de-couple social welfare from resource use.

However, this entire approach is widely viewed as irrelevant if not outright inimical to development. It will function mainly by making the use of carbon more costly, but a costlier carbon (regardless of whether it occurs through an increase in oil prices, a carbon tax, or through the emissions markets) will be regressive in character and will halt development in its tracks. As such, this is clearly irresponsible public policy, since it excludes from its purview the other half of the global agenda, namely development. Yet, there is tremendous pressure from industrialized nations to fit themselves within the procrustean bed of emissions targets without knowing how the development momentum will be affected.

One major disability of the cap and trade approach, namely its manifest inequity in the assignment of rights, can be corrected by the simple resort to a per capita emissions rights approach. This has long been advocated by several developing country governments and civil society activists. It has now been rescued by Chancellor Angela Merkel's courageous endorsement in her Tokyo Nikkei speech. This is a major advance over the simple cap and trade approach, in that it also builds in a financial mechanism to offset the disadvantage of poor countries.

Still, despite its elegance and ethical validity, per capita emission rights will not suffice by themselves to overcome the inherent limitations of the cap and trade approach. Besides

providing a financial transfer from over-consuming to under consuming countries, it provides no mechanism to ensure that the development agenda will not be derailed. It also fails to examine explicitly the differential costs of stabilization in rich and poor countries. Finally, the institutions for administering such a scheme effectively are far better developed in rich countries than in poor ones.

6 Climate change calls for unprecedented North-South Collaboration

Climate change is the first truly global problem, in the sense that response to it requires effective and sustained collaboration between industrialized and developing countries. Currently, about half of the world's carbon emissions come from a small minority (20 per cent) that live in industrialized countries and command about 80 per cent of global GNP. The remaining half comes from the vast majority (80 per cent) of the population that lives in developing countries, although they receive only one-fifth of the global GNP. Over the next century, the emissions of both groups have to be reduced by 80 to 95 per cent, depending on the group as well as the target selected. This means that neither the developing nor the industrialized countries by themselves can resolve this crisis. The emissions of both regions have to be curtailed radically.

Given this, the world needs an adjustment program for poor countries as well as rich countries. As mentioned earlier, the characteristics of these programs are fundamentally different. The current policy framework can suffice to guide rich countries, supported by professional macroeconomic management and worker support programs, to engineer a transition to a carbon free world without significant dislocation.

However, the adjustment program for developing countries will have to be very different. Instead of relying on targets and obligations, it will need to be framed within an investment framework. A reasonable investment program for such a transition is sketched below.

Besides the investment program and its financial implications, North-South collaboration would be needed in a number of additional areas, including trade, technology, migration, security, agriculture, and regulation.

- *Trade*: The climate cooperation will have implications for the global trade policy agenda. One immediate implication is for the TRIPS agreement, which may undermine the technological flows needed for effective climate action.
- *Technology*: Efforts to stimulate international technological cooperation have not been very successful. However, it is important to draw lessons from the small compendium of success stories in this regard. One such success story is that of the green revolution, which resulted in the transfer of know how from a handful of scientists to millions of mainly illiterate farmers in South Asia in less than a decade. This success was built upon a very professional approach to development, that included support for an interlocking set of institutions brought together by a robust national extension (or adult education) network. The other institutions include those for higher education, research, policy making, credit provision, input supplies, machinery, cooperatives, and marketing. The climate effort has yet to see a serious consideration of the facets of such a professional approach to technological development.

- *Migration*: This has long been a key element of successful development strategies of poor countries. In the future, as climate chaos may lead to significant population dislocation, there is a need to examine this issue dispassionately in order to create institutional frameworks for smooth transitions.
- *Security*: Linked to migration as well as environmental stress is the issue of human security. Instead of spending billions on peace making after the breakout of conflicts, it may be prudent to invest in conflict prevention through better anticipation of emerging stresses.
- *Agriculture*: Current agriculture policies of industrialized countries are heavily biased against poor countries. This equation will become increasingly intolerable when climate related stresses are added to the picture. It will be important to re-examine agriculture policies and their implications for development from a climate-sensitive perspective.
- *Regulation*: The ultimate resolution of the climate challenge will involve some form of regulation of fossil fuels. It needs to eb ensured that such regulation does not militate against the rights of developing countries, both producers and users of energy resources.

7 Sustainable Development needs an investment-based approach

Instead of the language of emission targets, rights, or trading, it will be more effective to focus on the development agenda directly. The center of this agenda has always been defined by investment. The most appropriate response would be to set up a global infrastructure investment program that gives the appropriate market signals to the private sector and levels the playing field for alternative energy technologies. The investment program could be in four areas:

1. *Carbon Capture and Storage*: This component would provide the equipment and know how to capture carbon emissions at large power plants. It would also invest in transmission and storage infrastructure, in the form of Sleipner fields, ideally located within countries and regions.
2. *The Hydrogen Economy*: This component would build a hydrogen pipeline for the energy system, which would in turn give incentives to independent producers to produce hydrogen from renewable electricity. It would also provide an impetus for the development of fuel cell technology.
3. *The Research and Extension System*: This component would invest in an interlocking set of institutions—education, research, extension, policy, inputs, credit, machinery, and marketing—on the lines of the successful model of institutional support for the green revolution in South Asia. The investment would be made in existing institutions (engineering colleges, existing policy research institutions, and so on). However, the extension machinery would have to be built from the ground up.
4. *Sustainable Cities*: Investment in urban transportation, building, and planning infrastructure to move towards carbon neutral cities.

Besides these four areas, a number of others have been mentioned as possibilities, but they remain highly controversial besides offering no more than a minuscule share of the emissions reduction challenge. These options are: a nuclear renaissance, a biofuels revolution, and various speculative bio-engineering schemes of carbon scrubbing.

Finally, a number of traditional policy domains have also assumed greater importance in the light of the climate challenge. These include population planning, afforestation (including reducing deforestation), conservation tillage, and energy conservation. These, by and large, are win-win options, and have not been achieved despite rhetorical policy support because of ignorance, lack of political will, or conflicting incentives. These should remain on the domestic policy agenda, and should be monitored vigorously, but should not be viewed as candidates for new externally mobilized investment.

8 A separate and adequately funded adaptation program would still be needed

The above approach asks simply how to ensure that the development momentum is sustained while it is weaned from its fatal dependence on carbon. Even with the best will in the world and the most optimistic scenarios of change, considerable climate change will occur over the next century, and will impose high and often unanticipated burdens, especially on poor and vulnerable groups, including in particular the small island states. As such, it is absolutely critical to establish a program for strengthening the coping and adaptive capacities of vulnerable groups and countries, with adequate funding, and a comprehensive menu of options.

9 Equitable options need to be developed for the phase out of the fossil fuel industry

Short of tremendous advances in carbon capture and storage, the impact of all climate policies will be to reduce to a trickle the extraction and use of fossil fuels. This has implications both for countries who own the underground resources of coal, gas, and petroleum, as well as the corporate structure built upon petroleum. The rights of countries that depend on extraction of fossil fuels has been recognized in the UNFCCC as a significant factor in the choice of policies.

For many countries, the discovery of mineral resources, especially petroleum, promises sudden increases in wealth and income. For others, especially those relying on domestic resources of coal and gas, these provide cheap and reliable access to energy. This raises a question for the global community, namely whether it is possible to de-couple the income of such groups from the rate of extraction of mineral resources, for example by some form of securitization of underground assets.

10 The financing of the climate stabilization program requires a re-examination of institutional, ethical, and political questions

A number of writers have tried to estimate the costs of various forms of actions that would be needed to facilitate a transition to a carbon free economy. These costs are estimated variously at between 1 and 3 per cent of global GNP (currently about US$ 40 trillion) until

the end of the century. While these figures are no more than educated guesses, they provide a starting point for the discussion of options.

While this estimate refers to total costs rather than to the volume of international transfers, it is still clear that volume of international transfer would far exceed current levels. Even the lower bound of the estimates (i.e. about $400 billion annually) is about eight times the current aggregate aid flows (US$ 55 billion). They also are off by an order of degree from environmental support funds, including the clean development mechanism and the global environmental facility. It is not entirely clear that the existing institutions for resource transfers would be best equipped to handle such a large increase in flows. This raises critical issues regarding potential global institutions to support the climate stabilization effort.

At another level, however, the resulting figures are far from excessive. To give a simple example, the International Energy Agency estimates that the total investment in the energy sector over the next 25 years to be about US$20 trillion, or an annual outlay of US$800 billion. Of this, US$5.9 trillion (or approximately US$240 billion annually) are meant for oilo exploration, refining, and transportation. At an aggregate global budget, given the urgency of climate change, there is a call for an immediate moratorium on oil exploration and increase in extraction, thus diverting the $5.9 trillion into other uses.

Third, there is the entire issue of building ownership of the effort. The current discussions make a clear division between rich and poor countries, and assume tacitly if not overtly that any net financial outlay would be under written by the former. This does not appear to be a fair formula. The ideal formula would be the same globally as it would be in a single country, namely to raise resources through a progressive income tax. This also makes sense in equity terms, since the higher income groups are also by and large the largest contributors to carbon emissions. A simple formula would be to agree on imposing a 1 per cent income tax on the richest 20 per cent of the global population *regardless of their domicile*. However, such an ideal would be unacceptable in its stripped form to most countries because of its implications for national sovereignty as well as administrative complications. Still, this could provide the ideal against which more practical and politically feasible options could be judged.

11 Economic development in poor countries is a necessary condition for the great transition in values and lifestyles, without which success in climate stabilization will be transient and unsustainable in nature

The strongest argument for a big push on development is that unless the world achieves a rough parity in international incomes, it will be impossible to wean human society from its addiction to ever increasing command over natural resources. Such unlimited growth has to run into the limits of a finite world sooner or later.

Having said that, it is important to begin a long term transition towards a more sustainable world, which does not require increase exploitation of natural resources in order to achieve economic stability and social peace. Such a transition requires investment in communicative action as well as in physical infrastructure, political institutions, and economic arrangements. It also requires a consistent focus on the creation of a just world order, a system of global governance that is open, transparent, participatory, and responsible.

12 The climate transition will have to be monitored actively by parliaments and civil society in the North as well as the South

The range and number of changes envisaged above involve enormous scope for misuse, corruption, and moral hazard. The deployment of technology on a vast scale brings with it potential consequences for human health as well as the environment. Many of the technological choices in question have only been tested at small scales or in laboratory settings. Extending them to the entire society is fraught with serious risk. As such, it is essential that all technological choices be made in an open and transparent manner, and that they be subject to scrutiny by effective institutions of monitoring and assessment—in the parliaments, the mass media, the nonprofit and activist sector, and by academia.

Similarly, the huge investment needed in physical infrastructure is also subject to capture by vested interests, and such problems as leakage, corruption, and obsolescence. The history of institutions that manage, regulate, or finance such investments is similarly problematic because of opaque decision procedures, conflicts of interest, and collusion with the subjects of regulation. It is equally critical that these investments follow transparent procedures and be subjected to external scrutiny.