CLIMATE CHANGE ADAPTATION IN DEVELOPING COUNTRIES: DOES GLOBALIZATION ACT AS FACILITATOR?

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Globalization has brought countries closer in terms of business, trade, technology, knowledge, policies and relations. Globalization, which is partly synonymous with rising international trade, has fostered rapid production, and consumption of material goods in an unprecedented scale and quantities. This has weighted the ecological footprint of human activities around the world. Thus, in this paper, analysis is presented in a manner to see the extent of such global efforts in facilitating climate change adaptation in developing countries. The paper also attempts to understand the degree of success achieved by developing countries in terms of climate change adaptation in the era of globalization. The paper presents climate change adaptation examples from few developing countries to delineate the correlation between globalization and climate change adaptation in recent times.

Keywords: *climate change adaptation, environment, globalization, governance.*

Introduction

Environment itself is inherently global, with life-sustaining ecosystems and watersheds frequently crossing national boundaries; air pollution moving across entire continents and oceans. The environment is intrinsically linked to economic development, providing natural resources that fuel growth and ecosystem services that underpin both life and livelihoods (Najam, Runnalls, and Halle 2007). It is not only that globalization impacts on the environment, but the environment influences the pace, direction and quality of globalization. This takes place because environmental resources provide fuel for economic globalization, but also because our social and policy responses to global environmental challenges constrain and influence the context in which globalization happens. The relation between the discourse of globalization and environment has enabled many scholars to devote their research to climate change adaptation and its relationship with globalization. Globalization is not new for the nations of the world. But as a scientific area of study the climate change adaptation has become prominent in the environmental studies since the world started recognizing significant changes in climate. On different occasions both developed and developing nations have agreed to work on adapting the recent climate changes and their impacts on the natural, social, economic and political environment.

Developing countries are vulnerable to extremes of normal climatic variability, and climate change is likely to increase the frequency and magnitude of some extreme weather events and disasters. Adaptation to climate change depends on current adaptive capacity and the development models pursued by developing countries. These countries continue to face diverse challenges in forming and implementing climate change adaptation plans. It is inevitable that natural forces will contribute to some of those challeng-

es. But, nature is not the single source of such challenges. Having considered the variety of sources of potential challenges, both developed and developing countries have been trying to figure out successful climate change adaptation strategies for last two decades. Due to globalization such collaboration has been possible in each and every sector. Globalization has brought countries closer in terms of business, trade, technology, knowledge, policies and relations. Globalization, which is partly synonymous with rising international trade, has fostered rapid production, and consumption of material goods in an unprecedented scale and quantities. This has weighted the ecological footprint of human activities around the world. Thus, in this paper, analysis is presented in a manner to see the extent of such global efforts in facilitating climate change adaptation in developing countries. The paper also attempts to understand the degree of success achieved by developing countries in terms of climate change adaptation in the era of globalization. The paper presents climate change adaptation examples from few developing countries to delineate the correlation between globalization and climate change adaptation in recent times.

Key Conceptual Discourses on Globalization and Climate Change Adaptation

Globalization

Globalization is the cluster of technological, economic and political innovations that have drastically reduced the barriers to economic, political and cultural exchange (Drezner 2001). It is a process of expanding trade and commerce creating borderless market all over the world. Globalization is now a part and parcel of our daily life. So what exactly is globalization? Globalization is defined here as a set of economic and political structures and processes deriving from the changing character of the goods and assets that comprise the base of the international political economy – in particular, the increasing structural differentiation of those goods and assets. Globalization refers to the recent transformations of capital, labor, markets, communications, scientific and technological innovations, and ideas stretching out across the globe (Carter 2008). Charlton and Andras (2006) define globalization as a phenomenon of modernization, which describes societies characterized by progressive growth in the complexity of communications, in particular, 'specifically to the increasing dominance of an international network of communications especially in the economy, but also in social systems such as politics, the mass media, and science and technology' (Charlton and Andras 2006: 869). Adams, Gupta and Mengisteab (1999) view globalization as an economic discourse that facilitates wealth creation. At the same time, they think that economic globalization can dislocate indigenous culture in least developed countries. Since the mid-1980s globalization has been accelerated considerably by two main factors. One involves technological advances that have lowered the costs of transportation, communication, and computation and the other factor has to do with the increasing liberalization of trade and capital markets. Wallerstein (1995, 1998, 2000) sees globalization as a world system in which the world is dominated by the developed nations. Developed nations, in such a world system, seek to infuse their ideas and strategies to developing nations in the areas of production-oriented activities and other economic activities. Wallerstein (1995) as a proponent of liberalism, thinks that globalization is a system through which developing countries would get better by installing ideas of their developed counterparts. But not all developing countries are equally engaged in globalization or in a position to benefit from it. Developing countries, except for most countries in East Asia and some in Latin

America, have been rather slow to integrate with the world economy. One review, by Scholte (2000), provides a classificatory scheme of several definitions:

Globalization as internationalization: The 'global' in globalization is viewed 'as simply another adjective to describe cross-border relations between countries'. It describes the growth in international exchange and interdependence.

Globalization as liberalization: Removing government imposed restrictions on movements between countries.

Globalization as universalization: Process of spreading ideas and experiences to people at all corners of the earth so that aspirations and experiences around the world become harmonized.

Globalization as westernization or modernization: The social structures of modernity (capitalism, industrialism, *etc.*) are spread all over the world, destroying cultures and local self-determination in the process.

Globalization as deterritorialization: Process of the 'reconfiguration of geography, so that social space is no longer wholly mapped in terms of territorial places, territorial distances and territorial borders'.

Globalization cannot be seen only from the economic perspective. Globalization not only refers to a series of economic but also technological changes that have modified the way the world works and transfers information (Penn 2005: 4 cited in Quigley 2009). These changes could include international trade, manpower migration, knowledge management, and information exchange. Apart from such technological advancement and increased opportunities for developing countries to adopt those technologies there are some other issues which also determine the processes of globalization. Politics is one of those to be looked at. Politics is a regular feature of globalization as well (Broad 2002). Culture is another one which needs to be considered critically. International non-governmental organizations (INGOs) represent, carry out, and elaborate global principles. It means NGOs promote globalization and try to mold cultures of developing nations (Boli and Thomas 1997). Although globalization does not create a common culture in which everyone holds the same beliefs and values, it does create a single arena in which all actors pursue their goals by deliberate comparison with others, using at least some common standards as yardsticks (Nettl and Robertson 1968; Robertson 2001). Emulation takes the form of selectively incorporating ideas from a global arsenal (Robertson 1995a, 1995b). Griffin (2003) points out that globalization is asymmetric and developed nations with the help of various international organizations try to rule this world. In this process developing countries remain deprived of free and equal access to knowledge, research opportunities, economic activities and factors of production. Through globalization the developed nations have been able to access the resources of developing nations. But it is unlikely for the developing nations to have similar access to the resources in developed nations. It shows that globalization is a discourse which is used by developed nations as political, economic and cultural weapons to dominate the developing ones.

Climate Change Adaptation

Adaptation to climate change – defined as 'adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, that moderates harm or exploits beneficial opportunities' (IPCC 2007) – represents an unprecedented challenge for the international system. Adaptation to climate change is given increasing international attention as confidence in climate change projections is getting higher. Develop-

ing countries such as Bangladesh have their own unique needs for adaptation due to high vulnerabilities. We can define adaptation to climate change as a set of organization, localization and technical changes that societies will have to implement to limit the negative effects of climate change and to maximize the beneficial ones. Possible adaptation actions include, for example, removing populations and assets from areas at risk of flooding as a result of climate change, adopting crop varieties that are more resistant and better adapted to future climates, or adjusting energy networks to expected variations in energy consumption (Hallegatte, Lecocq, and de Perthuis 2011). Adaptation to climate change has the potential to substantially reduce many of the adverse impacts of climate change. Climate change is no longer an external threat to be managed 'out there', but is an intimate element of human history – both an outcome and driver of development decisions for individuals, organizations and governments (Pelling 2011). To what extent planned adaptation measures for climate change are needed at all will depend on a variety of factors. One is an 'exposure' which is the vulnerability of a region towards climate change. Other includes 'impact', that is how much damage will be caused by climate change in a specific region. In order to address these factors there are two most important measures for climate change; 1) proactive and reactive adaptation measures and 2) adaptation and adaptive capacity.

Reactive adaptation consists of reacting *ex post* to adverse impacts of climate change when they occur. Whereas proactive adaptation consists of taking action before impacts occur to reduce vulnerability to these impacts and to limit adverse consequences or to take advantage of them. A distinction between the two measures is typically made between adaptation measures taken long before the occurrence of climate change and its impact and measures that are taken as a reaction to ongoing climate change (Konrad and Thum 2013). For example, evacuating people from a flooded zone and relocating them in a safe zone is considered to be reactive adaption, whereas changing the land-use plan in anticipation of future flooding is considered to be proactive adaptation.

The adaptive capacity of communities is determined by their socio-economic characteristics. Enhancements of adaptive capacity represent a practical means of coping with change and uncertainties in climate, including viability and extremes. For example, air conditioning is an adaptive measure to cope with heat, providing suitable conditions for work or life and reducing medical risks. In contrast, measures that improve the general health condition of the population are a means of making the population less vulnerable to extreme temperature events. Such measures increase the adaptive capacity of the society. Enhancement of adaptive capacity is a necessary condition for reducing vulnerability, particularly for the most vulnerable regions, nations and socioeconomic groups.

Relation between Globalization and Climate Change Adaptation: Developing Countries' Perspective

Many developing countries have already experienced weather events in terms of floods, droughts, heat waves, and tropical cyclones that are more frequent or intense than previous experiences (Dai, Trenberth, and Qian 2004), and the resulting impact point to the consequences on the environment, production systems, and livelihoods from future climate variability and change. Given the potential risks associated with climate change, a serious effort on characterizing and understanding adaptation is now underway. Analogues of adaptation in the past are complemented with policy and social sci-

ence research on the present adaptive capacity of governments, civil society and markets to deal with climate perturbations. The economic costs of future adaptations are being derived by examining the differences between the economic losses associated with scenarios of technology uptake and diffusion. Among these approaches, a key issue is the identification of successful adaptations in the developing world where the greatest risk and vulnerability persists (Adger *et al*. 2003).

For successful adaptation, developing countries must consider globalization as one of the main actors which often shapes a country's social, political, economic and administrative contexts. Globalization has been the proponent of international cooperation through a wide range of bilateral and multilateral development convergences. Thus, there is a relation between globalization and climate change adaptation in developing countries. For instance, United Nations Development Program (UNDP) focuses to Community Based Adaptation (CBA) strategies in developing countries so that these countries can design the strategies of adaptation based on their needs. UNDP is advocating such approach in Bolivia, Niger, Samoa, and Kazakhstan. All these countries have been collaborating with UNDP to work on different themes. Bolivia works on climate-resilient watershed management. On the other hand, Niger and Samoa work on optimizing resource cooperation in response to climate change and addressing climate-driven coastal hazards respectively. Meanwhile, Kazakhstan's CBA approach attempts at dealing with winter irrigation to replace the declining snowfall. All these efforts may be questioned because initiatives and strategies developed by foreign donors quite infrequently bring success in developing countries. Spires, Shackletona, and Cundill (2014) point out that CBA approach has three barriers, namely, social, resource, and physical and can obstruct the way of achieving successful adaptation through community participation. On two Eastern Caribbean islands, the implementation of reforestation to combat coastal erosion was met with opposition as community members placed high value on having a sea-view and access to the beach. Implementation of sea-level rise set-back lines was found to be exceptionally slow, with a lack of direct hurricane impact being hypothesized as one of the contributing factors (Cambers 2009). This corroborates the experiences from South Africa, where community apathy in relation to climate change education was apparent (Roberts 2010). These community members had no first-hand experience of major climate change impact. Similarly lack of information about resources has not allowed the farmers of Uganda to adopt alternative strategies (Roncoli *et al.* 2011). Similarly, Bangladesh, Bhutan, Maldives, and Cambodia have been experiencing a series of climate change adaptation projects in which communities need to play a greater role. Such projects have brought little success as communities lack knowledge and skill to implement the suggestions provided by the project teams (Sovacool *et al*. 2012). Guyana has faced problems in successful adaptation of climate change due to the absence of skilled manpower (Hickey and Weis 2012). This corroborates the notion of knowledge divide created by the practice of globalization. Not surprisingly due to globalization the developing countries are suffering from knowledge divide and lack of access to similar technologies that are regularly found in the developed ones (Quigley 2009; Griffin 2003). The cases mentioned here imply that globalization provide the opportunity to international agencies to intervene in developing countries' climate change adaptation. But this has not brought success in all instances. Rather, there are few unsuccessful ones. That means the role of globalization in building solid convergence in climate change adaptation is in doubt. Due to such questiona-

ble role of globalization discourse one can argue that globalization is not a facilitator to climate change adaptation in developing countries.

However, literature that chronicles barriers and opportunities also explores the reasons for the limited conversion of assessments and plans into action. These include behavioral and cognitive aspects (O'Brien and Wolf 2010; Nelson 2011), unconducive governance arrangements (Amundsen *et al*. 2010; Storbjo¨rk 2010), lack of or self-interested leadership (Anguelovski and Carmin 2011; Moser *et al.* 2012), competing planning agendas and lack of institutional coordination (Moser and Ekstrom 2010) insufficient financial and human capital and mechanisms for enabling these (Bryan *et al*. 2009; Kabubo-Mariara 2009), lack of information and data (Deressa *et al.* 2009; Hammill and Tanner 2011), historical determinacy and path-dependency (Chhetri *et al.* 2010; Abel *et al*. 2011), incorrect or incomplete diagnosis of problems (Gorddard *et al.* 2012), the widening science-policy gap associated with wicked problems and uncertainty and ambiguity (Sarewitz 2004; Dessai *et al*. 2007). All these barriers are often found in the process of climate change adaptation process in developing countries. One can note that globalization is a system in which developed countries tend to maintain the dominance over the developing ones. That is why developing countries find it difficult to globally promote their culture, trade, technologies, and political ideas. It has created a wide gap between North and South. It can be pointed out that all of those barriers to climate change adaptation are profound in developing countries only because of increasing gap between developed and developing nations.

Globalization has been the proponent of international cooperation and collaboration. Presumably globalization tends to shape the adaptation strategies in many ways as we have already discussed about the advocacy of CBA by different international donor agencies. But Laukkonen *et al.* (2009) present that successful climate change adaptation depends on the involvement of local people and their inherent ideas of dealing with potential changes. On the other hand, Smith *et al.* (2011) points to the coordination of international efforts of climate change adaptation in developing countries. Funds for climate change adaptation are coming from various sources. But lack of coordination and integration in utilization of those funds in developing countries hamper the adaptation strategies. It implies that globalization recognizes fund for adaptation in an asymmetric way. Globalization is often viewed as modernization of society, economy, politics, administration, infrastructure, and technology. Chittagong city, one of the largest cities of Bangladesh, can be mentioned as an example. Ahammad (2011) describes that Chittagong city's adaptation to climate change is often deterred by the lack of national level commitment and rapid modernization. Here rapid modernization is accompanied by rigorous misuse of land in this hilly region. People are prone to disaster like landslide. It shows that modernization through the channels of globalization neither helps to adapt necessary strategies nor presents stable natural condition. Globalization does not always provide the necessary tools to design a successful adaptation strategy. It is the social and cultural dimensions of a locality which actually determines the degree of success of each and every adaptation measures. The case of western Nepal encourages the removal of social barriers to adaptation rather than installing western ideas in a setting which may not accept it (Jones and Boyd 2011). Local knowledge is crucial in removing the social barriers. Anik and Khan (2012) point out to the case of climate

change adaptation in the north eastern region of Bangladesh. They describe the level of knowledge of the local people and initiatives they have taken to adapt climate changes. Significantly this part of Bangladesh has devised some effective adaption plans and strategies (Anik and Khan 2012). It implies that it is not always necessary to incorporate global practices in each locally devised strategy of adaptation. An inward looking strategy of adaptation can be enough to extract best out of each plan. Global convergence often confuses developing countries' governments in mapping the climate change adaptation strategy. Globalization has boosted the free market system. Due to the increase in cross-border trade and economic activities private organizations from developed countries are frequently setting up their business in developing countries. Unfortunately, institutions playing leading role in global governance have not been the strong proponents of private business organizations' involvement in climate change adaptation in developing countries. Multinational Corporations (MNC) are not frequently seen in the process of climate change adaptation (Pauw and Pegels 2013). Globalization has facilitated the growth of cross-border business through many MNCs but at the same time has neglected the role of those MNCs in managing adaptation process. They have the responsibility to the society and the environment in which they operate. Thus, they need to be incorporated in the framework of implementing adaptation plans (Biagini and Miller 2013). According to Biagini and Miller (2013) most businesses perceive consideration of climate risk in their investments and business plans to be unnecessary, technically difficult, and perhaps premature; acknowledging empirical evidence of climate effects and economic losses can be seen as politically sensitive.

Although there are a number of research suggesting localization of climate change adaptations one must recognize the fund and technical expertise, as help, from the international donor agencies. But Vidal (2012) thinks otherwise and asserts that wealthy countries have not only failed to provide cash to help poor people adapt to climate change, but much of what they have agreed to give so far has come out of existing aid budgets or in the form of loans that will need to be repaid. However, it is often observed that developing countries possesses a notable degree of distrust on the suggestions of western countries and international organizations led by western countries. It implies that globalization entails a significant level of injustice in global climate governance (Parks and Roberts 2006). Due to such kind of distrust in the actions of developed nations many developing countries have failed to capitalize the assistance from the former. For example, murderous flooding from Hurricane Mitch in Honduras, rising sea levels swamping the entire Pacific Island atoll nations and devastation from flooding among squatter settlements in Mozambique can be noted (Parks and Roberts 2006).

Discussion and Conclusion

The relationship between globalization and climate change adaptation in developing countries presents a scenario in which developing countries find themselves with a bottomless basket. Globalization typically possesses some features of neo-liberalism. The emergence of neo-liberal ideas has helped those countries which had developed strong market system for more than two centuries. Globalization has produced a world system through which developed countries have been able to enjoy neo-colonial system of trade and business. Globalization has also fostered the urban based colonization in

many developing countries as well (Atkinson and Bridge 2013). Exploitation is not only prevalent in the global governance but also present in developing countries. Emergence of MNC-based trade and business under the umbrella of globalization has been encouraging poor farmers of developing countries to sell their lands to foreign investors (Robertson and Pinstrup-Andersen 2010). It further aggravates the state of exploitation and creates a degree of distrust in international cooperation as well as aid governance.

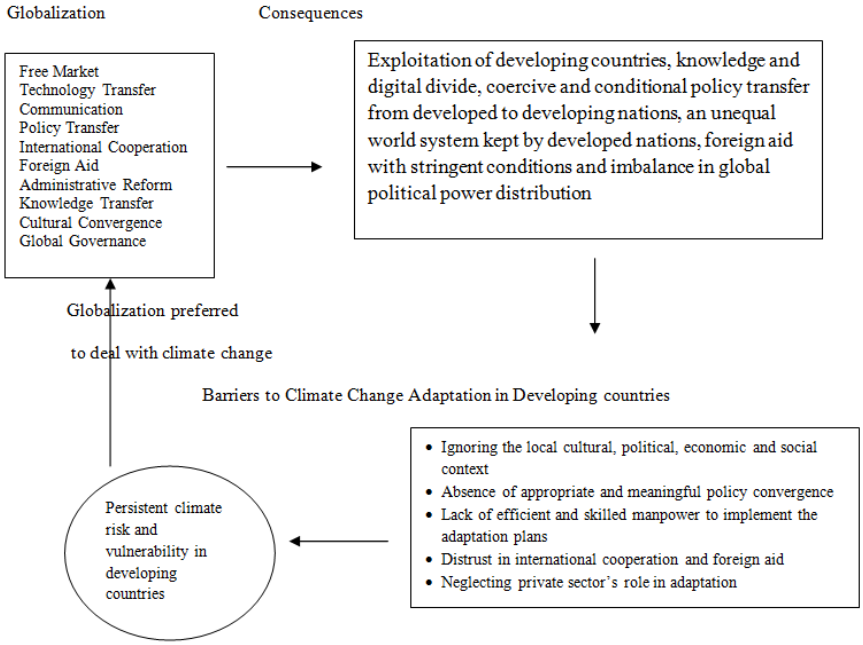

Diagram 1. A cycle showing relationship between globalization and Climate Change Adaptation in Developing countries

Source: Authors.

Diagram 1 shows what threats globalization poses to climate change adaptation in developing countries. Based on the analysis and example of some developing countries from the earlier section, the cycle of events is presented in this diagram. One can note the consequences of globalization in developing countries at the right hand corner of the diagram. The consequences significantly influence the climate change adaptation in developing countries. Diagram 1 depicts that exploitation, unequal world system, distrust in aid governance and international cooperation for adaptation, knowledge and digital divide both among the countries and also within the countries are the major consequences of globalization. Imbalance in global political participation is also needed to be recognized as powerful nations in terms of military strength and wealth often dictate the terms of United Nations (UN) and other international cooperative bodies.

It further exacerbates the condition of distrust in aid governance. Unfortunately, these consequences do not only pose multifarious problems for the poorer nations but

also create some tough barriers to climate change adaptation in those nations. Governments in developing nations, burdened with political and administrative problems, tend to collaborate with international agencies' suggestions while framing climate change adaptation plans. It means the local priorities have been overlooked in many occasions. Such plans, bypassing the local architecture of culture, politics and economy, have rarely brought success. As there is a certain degree of distrust in international donations and aid, developing countries fail to materialize meaningful policy convergence. It does not facilitate in building appropriate technology and skill at local level. Developing countries need essential manpower with such skills and knowledge. But due to persistent worldwide inequality in research and education the developing countries lack such skilled manpower. Globalization produces good results only for the developed nations in many ways. Strict barriers to trade and research have not made the developing countries' product and knowledge easily accessible to all people, countries, and cultures. That is why meaningful policy convergence is absent in terms of climate change adaptation in developing countries. Globalization has fostered the growth of MNC based trade and business all over the world. But it has failed to create a system of global governance in which those MNCs are held accountable for the absence of climate change adaptation in developing countries where most of their production facilities are located. Such failure further impedes a successful adaptation as MNC are one of the largest agricultural land acquirers in developing countries (Robertson and Pinstrup-Andersen 2010). Diagram 1 further shows that failed instances of climate change adaptation in developing countries encourage the proponents of globalization discourse. Such cycle of events impedes the 'demise' of globalization. Mostly the developed countries, who are highly concerned with the future effects of climate change, want to maintain a homogenous culture, politics and economy so that they can continuously exploit the developing countries. They would also advocate globalization as it allows the developing countries to receive funds for development and climate change adaptation. But such propaganda cannot hide the contradictory role of globalization in climate change adaptation in developing countries.

Globalization has huge implications for nation-states and governance systems, in their diversity of forms and structures. The integration of markets, the extension and complexity of climate change, and the increasing homogenization of culture and the lifestyle expectations accompanying these changes have expanded the scope of what used to be considered as primarily domestic problems while creating new challenges to governance that are only now being recognized. Nation-state and governance systems have increasingly come under scrutiny while deliberately discussing the role of globalization in shaping climate change adaptation in developing countries because the state has a greater role to play in mapping out the necessary adaptation plan in this era of globalization (Eakin and Lemos 2006).

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