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Climate Justice:
the Case of the Clean Development Mechanism

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Abstract

Climate change is indeed one of the most salient and pressing challenges that humankind needs to address in the near future. One outstanding reason why climate change is such a big issue – not only scientifically but foremost politically – lies in its distributional aspects. This is because there are (i) differences in the impact of climate change, (ii) different costs to mitigate and adapt to climate change and (iii) different historical contributions. The international climate change regime plays a vital role in promoting distributional justice as it determines to what extent such differences are taken into account for the overall burden-sharing of the collective action against global climate change. The climate regime relies on the principle of common but differentiated responsibilities to deal with the distributional aspects of climate change. In the Kyoto Protocol, this principle is reflected in the fact only certain developed countries commit to limit or reduce greenhouse gas (GHG) emissions. However, under the Clean Development Mechanism (CDM), the Annex B Parties can implement projects resulting in limitation or reduction of GHG in recipient developing countries and acquire corresponding certified emission reductions, which would be counted towards their limitation or reduction efforts. Given that it gives the Annex B parties more cost-efficient options to implement their obligation, the CDM also pursues sustainable development in project-recipient countries, an effort to maintain equity within the system.

Taking the CDM as an example and analysing its sustainable development implications, this paper aims to address the equity issue of the current climate change regime. To this end, this paper analyses the modalities and procedures of the CDM and the current profile of CDM projects and examines the two case studies of *Barro Blanco Hydroelectric Power Plant Project* and *Recovery of associated gas that would otherwise be flared at Kwale oil-gas processing plant in Nigeria*. The analysis shows that the current CDM may lack the capacity to fulfil sustainable development objectives in developing countries and therefore, not be enough to secure equity and justice among countries in the climate change regime. Firstly, the absence of an internationally agreed legal definition of sustainable development under the CDM, as well as effective monitoring or assessment systems, has made it difficult to ensure the realisation of

sustainable development objectives. Secondly, the lack of transparent local consultation in both case studies, has failed to safeguard interests of local communities, which would generally coincide with realising social component of sustainable development. Thirdly, the distribution of the CDM projects is skewed towards large developing countries, sidelining those actually in need of more assistance to move towards sustainable development, which also undermines equity and justice of the Mechanism. Fourthly, specific types of projects that are more likely to undermine sustainable development should be more carefully examined, as the Kwale project has been criticised that giving CERs to such a project would rather reward illegality.

Learning lessons from the current CDM, a project-based and carbon-offset mechanism in the post-2020 climate regime would need to adopt specific and universal sustainable development requirements, have monitoring and assessment system to ensure a project's contribution towards sustainable development, require strengthened local consultation to safeguard interests of local communities and also balance distribution of projects among recipient countries.

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1. Introduction

"Warming of the climate system is unequivocal", as observed from global average surface temperatures, widespread melting of snow and ice and rising sea level.[1] As of 2007, the years from 1996 to 2006 ranked among the 12 warmest years in global surface temperature since 1850 and global sea level rose on average at a rate of 1.8mm per year between 1961 and 2003, which became faster between 1993 and 2003.[2] Since the 1970s, more intense and longer droughts have also been witnessed over wider areas, attributable to higher temperatures and decreased precipitation.[3] And the International Panel on Climate Change (IPCC) has concluded that "it is extremely unlikely that global climate change of the past 50 years can be explained without external forcing, and very likely that it is not due to known natural causes alone" and it is very likely that the most of the observed increase in global average temperatures since the mid-20th century is due to the increase in anthropogenic greenhouse gas (GHG) concentrations.[4] The IPCC projects a warming of about 0.2 degrees Celsius per decades for the period of 2008-2027 and a warming of about 0.1 degrees even if the concentrations of all GHGs and aerosols had been kept constant at 2000 levels.[5]

Realising that joint efforts among countries would be needed to cope with this phenomenon and it global ecologic, as well as socio-economic impacts, the international community signed the United Nations Framework Convention on Climate Change (UNFCCC) in 1992. Since then, the UNFCCC and the Kyoto Protocol,[6] by which developed countries and countries with economies in transition commit to limit or reduce GHG emissions,[7] have been guiding international efforts to tackle climate change. In force since February 2005, the Kyoto Protocol will continue to be the

1IPCC, 2007: Summary for Policymakers. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M.Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.At p.3.

2*Ibid.*, p.3

3*Ibid.*, p.8

4*Ibid.*, p.10

5*Ibid.*, p.12

6 United Nations Framework Convention on Climate Change (9 May 1992),(1992) 1771 UNTS 107, (1992) 31 ILM, 851; Kyoto Protocol (11 December 1997) (1998) 2303 UNTS 148, (1998) 37 ILM, 22.

7 Art.3 and Annex B Kyoto Protocol

spearhead of the climate regime till 2020. However, when the second commitment period of the Kyoto Protocol comes to an end by 2020, the world will need to put in place either a new commitment period, or another more ambitious treaty that ensures the continuity of the climate change regime over the next decades. Meeting such expectation, the Parties to the UNFCCC succeeded in reaching the so-called 'Paris Agreement' during the 21st Conference of the Parties (COP) in December 2015, which will shape the post-2020 climate change regime.

The reason why climate change has become a big issue – not only scientifically but also politically – lies in its distributional aspects. This is because there are (i) differences in the impact of climate change, (ii) different costs to mitigate and adapt to climate change and (iii) different historical contributions. The international climate change regime plays a vital role in promoting distributional justice as it determines to what extent such differences are taken into account for the overall burden-sharing of the collective action against global climate change, especially in terms of obligations or rights of each country. In accordance with article 3, paragraphs (1) and (2) of the UNFCCC, the climate regime relies on the principle of common but differentiated responsibilities to deal with the distributional aspects of climate change.[8] In the Kyoto Protocol, the most evident distributional effect of the common but differentiated responsibilities principle lies in the fact that only developed countries and countries with economies in transition commit either to limit or reduce GHG emissions, having regard of their respective historical contributions to the global warming and their higher capabilities to mitigate climate change. However, the Kyoto Protocol adopts flexible mechanisms to give leeway to the countries in implementing their obligation to limit or reduce GHG emissions. The three flexible mechanisms are the Clean Development Mechanism (CDM),[9] the Joint Implementation (JI)[10] and Emissions Trading (ET).[11] The CDM

8According to Art.3 UNFCCC, which sets out the regime's guiding principles, '(1) [t]he Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof. (2) The specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change, and of those Parties, especially developing country Parties, that would have to bear a disproportionate or abnormal burden under the Convention, should be given full consideration.'

9 Art. 12 Kyoto Protocol

10 Art. 6 Kyoto Protocol

enables the Annex B Parties, which are mostly developed countries, to implement projects resulting in limitation or reduction of GHG in recipient developing countries, and therefore, to acquire corresponding certified emission reductions (CER), which would then to contribute to compliance with part of their quantified emission limitation and reduction commitments. From this perspective, the CDM might serve more the interest of developed countries, as under this mechanism they are allowed to utilise developing countries as a more cost-efficient option to implement their obligation. Taking into such concerns, the CDM sets forth as its objective assisting host countries of CDM projects in achieving sustainable development, along with assisting the Annex B Parties in achieving compliance with their quantified emission limitation and reduction commitments. Therefore, pursuing sustainable development in project-recipient countries seems to be an effort that the Kyoto Protocol has adopted to maintain equity within the CDM, as it could offset the possibly undermined justice by the flexibility given to the Annex B Parties.

Therefore, by analysing the CDM and its sustainable development objective, this paper aims to address the equity issue of the current climate change regime, as the mechanism has potential to both intensify and lessen inequity among countries. To this end, the section 2 discusses the theoretical background on sustainable development and distributional justice in the climate change regime. Secondly, the section 3 appraises the two main pillars which form the current international climate regime – the UNFCCC and the Kyoto Protocol –before examining the modalities and procedures of the CDM and the current profile of CDM projects. Based on this, equity concerns which can be drawn from structure of the CDM will be addressed. Thirdly, case studies will be carried out in the section 4 on two specific CDM projects to analyse their contribution to sustainable development of the host countries. In conclusion, final discussions will be made regarding how likely the CDM can contribute to sustainable development of the host countries, therefore, how much the mechanism serves the distributional justice in climate change, and what lessons a post-2020 mechanism can learn from the past experiences of the CDM.

11 Art. 17 Kyoto Protocol

2. Theoretical Background

2.1. Environment, Development, and Sustainable Development

It is understood that the link between environment and development began to appear in the late 1960s with some books published about relevant issues and a few important organisations or forums established.[12] A panel of experts on development and environment met in Founex, Switzerland in 1971 and prepared the so-called Founex Report, which recognised that "the current concern with environmental issues has emerged out of the problems experienced by the industrially advanced countries" and thus, the environmental problems resulted from a high level of economic development.[13] In this report, the experts argued that development objectives should go beyond mere economic growth and integrate environmental considerations, not to mention social and cultural aspects.[14] In the following year, the United Nations Conference on the Human Environment was held in Stockholm and produced the declaration, which further emphasised the environment-development link from the perspective of developing countries. It was mentioned that not only ecological processes but economic factors should be considered particularly for developing countries (principle 10) and environmental policies of states should not adversely affect the developmental potential of developing countries (principle 11).[15] The specific term 'sustainable development' became popular from the World Commission on Environment and Development's report titled *Our Common Future* in 1987. This so-called Brundtland report gave direction for comprehensive global solutions about environment and development by suggesting an integrated formula of 'sustainable development', a notion it defined as the development which "seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future."[16] Together with

12IISD, *Sustainable Development Timeline*, accessed 30 July 2015,https://www.iisd.org/rio+5/timeline/sdtimeline.htm.

13 The Founex Report on Development and Environment, 1971, para.1.2.,accessed 1 August 2015, http://www.stakeholderforum.org/fileadmin/files/Earth%20Summit%202012new/Publications%20and%20Reports/founex%20report%201972.pdf.

14*Ibid.*, para.1.6.

15*Declaration of the United Nations Conference on the Human Environment*, 16 June 1972, accessed 1 August 2015, http://www.unep.org/Documents.Multilingual/Default.asp?documentid=97&articleid=1503.

16World Commission on Environment and Development, *Our Common Future*, Oxford: Oxford

the Brundtland report, the Rio Declaration in 1992 laid the foundations for sustainable development to become a universally accepted guiding principle, with emphasis on environmental protection in the development process.[17] However, it was not until the World Summit on Sustainable Development (WSSD) of 2002 that the social and developmental dimensions of sustainable development, including poverty, education and health, came to draw more attention.[18] According to Rajamani, the focus of the environment versus development debate developed over time to encompass a larger number of developmental concerns so that the WSSD turned the spotlight more prominently on development issues.[19] Till now, there are various interpretations on sustainable development and a universal, generally accepted definition is absent. However, it is quite widely acknowledged that sustainable development comprises three mutually reinforcing components - economic development, social development/equity and environmental protection.[20]Still, the dominant view of governments and businesses is that sustainable development is continued economic growth made more environmentally sensitive, while side-lining its social component.[21]

2.2. Climate Change and Distributional Justice

The international community began to perceive climate change as a relevant socio-economic matter much later than when the linkage between environment and development started to be explored. International efforts to address climate change began with the first World Climate Conference in 1979, organised within the scientific community - by the World Meteorological Organisation (WMO), the United Nations

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University Press, 1987, p.39.

17Drexhage, J., and Murphy. D, "Sustainable development: from Brundtland to Rio 2012. Background paper prepared for consideration by the High Level Panel on Global Sustainability at its first meeting 19 September 2010," 2010, http://www.un.org/wcm/webdav/site/climatechange/shared/gsp/docs/GSP1-6_Background%20on%20Sustainable%20Devt.pdf

18*Ibid.*, pp.8-9; Rajamani, L., "The changing fortunes of differential treatment in the evolution of international environmental law." *International Affairs*Vol. 88, No. 3, 2012, p.613

19Rajamani, L., "The Changing fortunes...," *op. cit.*, p.614.

20UNGA Res 55/199, Ten-year review of progress achieved in the implementation of the outcome of the United Nations Conference on Environment and Development, 20 December 2000 (UN DocA/RES/55/199).

21Drexhage, J., and Murphy.D, "Sustainable development...," *op. cit.*, p.10.

Environment Programme (UNEP) and the International Council of Scientific Unions.[22] This meeting concluded admitting the possibility of the anthropogenic increase in carbon dioxide resulting in major long-term changes of the climate. However, it was only in the late 1980s and early 1990s that the greenhouse effect went "from being a little-known technical concern of a few atmospheric scientists to a subject of widespread public anxiety and international regulatory interest."[23] The interest in climate change did not build on concern for distributional justice from the beginning, such as who would bear the burden of efforts to respond to climate change.[24]

However, a lot of attention has been paid to distributional aspects of climate change these days, which raises concern for distributional justice in the international climate change regime. The three main distributional aspects of climate change are (i) differences in the impact of climate change, (ii) different costs to mitigate and adapt to climate change and (iii) different historical contributions.[25] First of all, the impact of climate change differs to a significant degree, depending on countries and regions. For example, although more intense and longer droughts have been observed over wider areas, the tropical and subtropical regions have been more affected than others, as worldwide precipitation is shifting away from the equator and toward the poles.[26] In this respect, central Asian, Mediterranean and African countries which already suffer high water scarcity would particularly experience additional pressure.[27] Furthermore, the livelihoods of islanders that rely on fishing on the highly temperature-sensitive coral reefs would be threatened and low-lying countries would greatly suffer from even a

22Agarwal, A., Narain, S., Sharma, A., *Green Politics: Global Environmental Negotiations*, Centre for Science and Environment, New Delhi. 1999.

23Cohen, S., Demeritt, D., Robinson, J., "Climate Change and Sustainable Development: towards dialogue," *Global Environmental Change*, Vol. 8, No. 4, 1998, p.343.

24Okereke, C., *Global justice and neoliberal environmental governance: ethics, sustainable development and international co-operation*,Routledge, 2007, pp.14-15.

25UNGA Res 44/228 (22 December1989), explicitly attributed historical responsibility for certain global environmental problems to developed countries(para.9) (UN Doc A/RES/44/228).

26 IPCC, 2007: Summary for Policymakers, *op.cit.*, p.8; Revkin, A., *Poor Nations to Bear Brunt as World Warms*, 1 April 2007, http://www.nytimes.com/2007/04/01/science/earth/01climate.html?ex=&_r=0.

27IPCC. *Climate Change 2007 – Impacts, Adaptation and Vulnerability: Working Group II Contribution to the Fourth Assessment Report of the IPCC (Climate Change 2007)*. Cambridge: Cambridge University Press, 2007. Cited in Okereke, C., *Global justice…, op. cit.*, p.26.

small increase in sea level.[28] By contrast, climate change could be beneficial to some regions in the short term - for example, regions in high altitudes could benefit from extended growing seasons.[29] However, it is likely that low-income countries are going to suffer most from negative impacts of climate change because of their geographical conditions such as LDCs located in the tropical and subtropical areas and small island countries combined with economic circumstances of high dependence on climate-sensitive sectors such as agriculture and fisheries.[30]

Second, the cost of mitigating and adapting to climate change varies depending on countries and regions due to differences in economic and technological capabilities as well as differences in the type and extent of impact.[31] As the UNFCCC notes, the principal way to mitigate climate change effects is via stabilisation and reduction of GHG. This requires not only changes in economic and social structures but also changes in lifestyles and daily choices and cost of making such changes varies from countries to countries: for instance, some industrialised countries already equipped with low-carbon emission technologies are better placed to reduce GHGs via changing their energy consumption patterns whereas even efforts to reduce a small amount of GHG in many developing countries can bring about much stress to their economies.[32] In this sense, as the IPCC report in 2001 acknowledges so as the signatories of the Kyoto Protocol, mitigation policies such as emission reduction will bring huge implications for economic inequalities among countries.[33] It is not only mitigation activities but also adaptation efforts where the differences in the cost are witnessed. In general, rich countries are also better placed to adapt to the economic and social consequences of climate change than poor countries.[34] Whereas rich countries have resources and

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28IPCC,*Climate Change 2007…, op.cit.*;Stern, N.,*The Economics of Climate Change: The Stern Review*, Cambridge: Cambridge University Press, 2007. Cited in Okereke, C., *Global justice…, op. cit.,* p.26.

29Okereke, C., *Global justice...,op.cit.,* p.25.

30 OECD, *Poverty and Climate Change: Reducing the Vulnerability of the Poor through Adaptation*, 2003, p.5, accessed 16 July 2015, http://www.oecd.org/env/cc/2502872.pdf; Stern, N., *The Economics of…, op. cit.,* IPCC,*Climate Change 2007…, op.cit*.

31Okereke, C., *Global justice...,op.cit.,* p.26.

32*Ibid.,* p.26.

33*Ibid.,* p.26.

34Paavola, J., 'Justice in Adaptation to Climate Change in Tanzania', in W. N. Adger et al. (eds), *Fairness in Adaptation to Climate Change*, Cambridge, MA: MIT Press, 2006. Cited in Okereke, C., *Global justice…, op. cit.,* p.27; Stern, N., *The Economics of…, op. cit.*; IPCC,*Climate Change 2007…, op.cit*.

capabilities to carry out climate change adaptation policies, poor countries lack both resources and capabilities that the same adaptation efforts would result much more costly. For example, US farmers are taking advantage of advanced technologies to produce genetically modified crops which can prosper in dry and wet years and thus, compensate for a 10 or 15 percent drop in rainfall, setting aside the controversies over social and ecological sustainability of the genetically modified crops.[35]

The third distributional dimension of climate change is that countries contributed to a different degree to the current challenge of climate change. In 2011, the biggest emitter of CO_2 emissions was China, responsible for 28.6% (9,697 $MtCO_2$) of the total CO_2 emissions[36], followed by the United States 16% (5,420 $MtCO_2$), India 5.8% (1,967 MtCO2) and Russia 5.4% (1,820 MtCO2).[37] However, the current global warming is not merely the result of GHG emissions of the previous year or any particular year. Rather, it is the result of the build-up of historical GHG emissions as GHGs can persist in the air for centuries. Therefore, cumulative CO_2 emissions would be a better indicator for historical contribution for the current climate change. When looking at the cumulative CO_2 emissions between 1850 and 2005, the United States ranks first, accounting for 29.3% of the total world emissions, Russia ranks second with 8.1% and China ranks third with 7.6% while the European Union as a whole represents 26.5%.[38] The same data show that developed countries represent 76% of the cumulative CO_2 emissions in the world during this period while developing countries represent 24%. In contrast, Africa accounts for less than 3 percent of the global emissions of carbon dioxide from fuel burning since 1900.[39] In this respect, "industrialised countries owe their current prosperity to years of historical emissions, which have accumulated in the atmosphere since the start of the industrial revolution whereas developing countries

35Revkin, A., *Poor Nations...*, *op. cit.*

36This figure is only by adding up all the fossil fuels burned and cement produced and then converted into CO_2, which excludes other greenhouse gases and non-fossil-fuel sources of CO_2. See http://www.theguardian.com/environment/2011/apr/21/countries-responsible-climate-change.

37 Oliver, J.G.J., Janssens-Maenhout, G., Peters, J.A.H.W., *Trends in global CO2 emissions; 2012 Report*, Netherlands Environmental Assessment Agency, 2012, accessed 30 July 2015 at http://www.pbl.nl/en/publications/2012/trends-in-global-co2-emissions-2012-report.

38 Herzog, T., Pershing, J., Baumert, K.A., *Navigating the Numbers: Greenhouse Gas Data and International Climate Policy*, World Resource Institute, 2005, pp.31-32, accessed 30 July 2015 at http://www.wri.org/publication/navigating-numbers.

39Revkin, A., *Poor Nations...*, *op. cit.*

have only recently set out on the path of industrialisation."[40] Therefore, the resources needed to combat climate change should not be seen as an extra burden for them but as "the inevitable need to repay the ecological debt that has helped them achieve their present wealth."[41]

However, the reality is that "wealthy nations became affluent without any restraints on the discharge of GHG emissions"[42],as a result of which poorest countries are likely to suffer most due to the serious impact they will have because of their geographical and socio-economic conditions as well as high cost they have to pay to mitigate or adapt to climate change because of their lack of technological and financial capabilities. Hence, factoring in all these aspects it becomes very complicated to answer the question, 'how much should each nation contribute to the mitigation/adaptation so that it would be equitable?' In addition, generally weak position of poor countries (excluding large industrialising countries such as China, India and Brazil) in the international political arena adds to the already existing disadvantage that they are facing in dealing with climate change as it makes harder to draw a more equitable conclusion from their perspective. For example, even the Alliance of Small Island States (AOSIS), which seems to have made lots of efforts to exert an influence on the climate change negotiations, has not managed to achieve much besides being recognised of their vulnerability and the need for special consideration[43], not to mention the very little influence the Sub-Saharan African region has made on the negotiations despite it is one of the poorest and the most vulnerable areas.[44] By contrast, the United States has dominated the climate change negotiations and had even refused to negotiate, which brought a huge impact on shaping decisions.[45] Poor countries are also at a distinct disadvantage in influencing scientific debate, lacking scientific and technological

40Agarwal, A., "A Southern Perspective on Curbing Global Climate Change", in *Climate Change Policy: A Survey*, edited by Schneider, S. H., Rosencranz, A., and Niles, J. O., Washington, D.C.: Island Press, 2002, p.376.

41*Ibid.*, p.377.

42Gordon, R., "Climate Change and the Poorest Nations: Further Reflections on Global Inequality," *University of Colorado Law Review*, Vol. 78, 2007, pp.1601-1602.

43Report of the World Summit on Sustainable Development, 26 August – 4 September 2002, pp.58-61, UN Doc A/CONF. 199/20(2002).

44Gordon, R., "Climate Change...," *op. cit.*, pp.1620-1621.

45*Ibid.*, p.1622.

knowledge and capabilities.[46] Indeed, there is an "enormous disparity in North-South participation in the IPCC" as most scientists in IPCC working groups are mostly from Western countries.[47] Under the presumption that science is not neutral but scientists are influenced by their cultural biases and views, some have maintained that such biases have shaped the emphasis on the consequences of global warming in favour of the Northern hemisphere.[48]

Indeed, the question of global distributional justice, that is, how the global resources as well as the benefits and responsibilities arising from interstate relations may be equitably shared between states, has become one of the main controversies surrounding not only the climate change regime but also the paradigm of sustainable development. As the Brundtland report recognised in 1987, meeting essential needs not only requires economic growth in poor nations the majority of whose populations are poor but also an assurance that those poor get 'fair share of resources' required to sustain that growth.[49] Therefore, in principle 'sustainable development is only realisable via a just, fair and equitable distribution of available resources both within and between generations.'[50]

2.3. Common but Differentiated Responsibilities

Such equity concerns have been reflected in the international environmental regime as differential treatment in favour of developing countries. The first appearance of differential treatment in international environmental law dates back to the Stockholm Declaration of 1972, which recognised the need to provide additional resources - technical and financial assistance - to developing countries to protect environment and that environmental standards valid for most advanced countries may be "inappropriate and of unwarranted social cost for the developing countries."[51] In the years after the

46*Ibid.*, p.1600

47Agarwal, A., "A Southern Perspective...," op. cit., p.379.

48Gordon, R., "Climate Change...," *op. cit.*, p.1600; Agarwal et al., Green Politics…, *op. cit.*, p.20; Coll, R. K., "Probing Scientists' Beliefs: How Open-Minded Are Modern Scientists?,*" International Journal of Science Education*, Vol. 26, No. 6, 2004, pp.757-778.

49World Commission on Environment and Development, *Our Common Future…*,*op. cit.*,p.16.

50Okereke, C., *Global Justice*..., op. cit., p.4.

51*Ibid.*, p.110; *Declaration of the United Nations Conference on the Human Environment, op. cit.*,

Stockholm Declaration, equity concerns raised by developing countries in a series of multilateral environmental negotiations resulted in several provisions on differential treatment in the Montreal Protocol of 1987 and the Basel Convention of 1989.[52] The differential treatment included in these treaties was to give more flexibility to developing countries with respect to implementation of the treaty obligations (i.e. delayed compliance schedules, adoption of subsequent base years) or to give financial and technological assistance.[53]

In 1989, the UN General Assembly affirmed in its resolution 44/228 that "the responsibility for containing, reducing and eliminating global environmental damage must be borne by the countries causing such damage, must be in relation to the damage caused and must be in accordance with their respective capabilities and responsibilities."[54] Later in the Rio Declaration in 1992, this evolved into the principle of common but differentiated responsibilities.[55]This was explicitly mentioned in the principles 6 and 7 of the Rio Declaration: "*The special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority….In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The 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*." [56] According to Sands, the common but differentiated responsibilities principle arose "from the application of equity in general international law and the recognition that the special needs of developing countries must be taken into account in the application and interpretation of international environmental laws."[57]

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principles 12 and 23.

52Rajamani, L., "The Changing fortunes...," *op. cit.*, p.608.

53*Ibid.*, p.608.

54UNGA Res 44/228, United Nations Conference on Environment and Development, 85th plenary meeting,22 December1989, (UN Doc A/RES/44/228).

55Rajamani, L., "The Changing fortunes...," *op. cit.*, p.608.

56Rio Declaration on Environment and Development, Principles 6&7, June 1992, accessed 6 December 2015, http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163.

57Sands, P., *Principles of International Environmental Law (Vol. 1)*, Manchester; Manchester University Press, 1995, pp.217-220. Cited in Okereke, C., *Global justice…, op. cit.*, p.112.

The common but differentiated responsibilities principle then served as a basic element of UNFCCC and the Kyoto Protocol and was applied through differential treatment with respect to the central obligations such as emissions reduction targets and timetables, on top of other forms of differential treatment which already appeared in the previous treaties.[58] Developing countries managed to negotiate this form of differentiation as there was an understanding that "the largest share of historical and current GHG emissions had originated in developed countries, that per capita emissions in developing countries are still low, and that the share of global emissions from developing countries will grow to meet their social and developmental needs."[59]

However, as emerging economies like China, India and Brazil grew rapidly in the mid-2000s and the differences in economic capabilities and positions towards climate change mitigation among the group of developing countries(G-77) grew wider, the justification for differential treatment in favour of developing countries weakened.[60] The decision in the 17th COP in Durban in 2011 to negotiate 'a Protocol, another legal instrument or agreed outcome with legal force under the Convention applicable to all', without a reference to 'equity' or 'common but differentiated responsibilities' reflects such a trend.[61] However, a future regime with weakened concept of differential treatment, or common but differentiated responsibilities, would even aggravate the problem of equity and justice that the climate change entails.

58Rajamani, L., "The Changing fortunes...," *op. cit.*, p.611.
59*Ibid.*, pp.611-2.
60*Ibid.*, pp.614-5.
61Rajamani, L., "The Changing fortunes...," *op. cit.*, p.618.

3. UNFCCC, Kyoto Protocol and Clean Development Mechanism

3.1. Development of UNFCCC and Kyoto Protocol

The current international regime on climate change is based on the United Nations Framework Convention on Climate Change (UNFCCC), which was signed in the Rio Earth Summit in 1992 and came into force in 1994. The UNFCCC stipulates the principles guiding its objective and general obligations for countries and establishes a mechanism which allows the Parties to negotiate concrete measures and specific legal obligations via COPs, the so-called annual meetings.

As set out in Article 2 UNFCCC, the ultimate objective of this convention is to "stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" while allowing natural adaptation of ecosystems, ensuring unthreatened food production and enabling economic development in a sustainable manner. According to Article 3 UNFCCC, the principles include (i) the protection of the climate system "on the basis of equity and in accordance with the Parties' common but differentiated responsibilities and respective capabilities (3.1.)", (ii) full consideration of the specific needs and special circumstances of developing countries (3.2.), (iii) the need of "taking precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects" (3.3), (iv) the promotion of sustainable development (3.4), (v) the cooperation among countries to enable sustainable economic growth and development and better response to climate change (3.5). In particular, the principle of the common but differentiated responsibilities has consolidated its pivotal position in successive climate change negotiations, guiding not only the structure and mechanisms of the Kyoto Protocol but also other subsequent decisions. In addition, under the UNFCCC, all parties have the obligations of developing and publishing the national inventories of GHG emissions, formulating and implementing regional measures to mitigate and adapt to climate change and promoting and cooperating in the development and diffusion of technologies and practices which can reduce GHG emissions, among others.

The UNFCCC thus providing the foundational international legal instrument for the so-called climate change regime, it is then complemented by the Kyoto Protocol, which was adopted in 1997 as a legally binding international agreement which assigns specific obligations for individual countries by setting quantified limitation or reduction targets of GHG emissions. Based on the principle of common but differentiated responsibilities, the Kyoto Protocol obliges only the Annex B countries of the Protocol, which are developed countries and countries with economies in transition, to reduce their GHG emissions to their quantified targets. The Protocol entered into force in 2005 and during its first commitment period from 2008 to 2012, 37 industrialised countries and the European Community committed to reduce GHG emissions to an average of five percent against 1990 levels. For the ongoing second commitment period from 2013 to 2020, the slightly different composition of the Parties has committed to reduce GHG emissions by at least 18 percent below 1990 levels.[62]Special consideration is also given so that developing countries which voluntarily assume binding emissions targets have the option of using a different base year than 1990 to measure their GHG reductions and are afforded a certain degree of flexibility.[63]

Besides that the Kyoto Protocol obliges Annex B Parties to reduce their GHG emissions, it has another significant trait as it adopts three flexible mechanisms – Joint Implementation, CDM and Emissions Trading –to enable the Annex B Parties to meet their reduction targets in a flexible as well as cost-effective manner. The flexibility in this sense refers to 'spatial flexibility' in that those mechanisms, which are commonly called as 'flexible mechanisms' or 'Kyoto mechanisms', allow countries which have to pay high costs to reduce GHG emissions, for example, can invest projects in other countries which can give lower-cost options to meet the same targets, although domestic measures still need to be the principal way to meet the emission reduction or limitation targets and these mechanisms should only be supplementary.[64]In accordance with their underlying rationale, the flexible mechanisms are thought to have the advantage of "bringing about global environmental benefits at the lowest possible cost by exploiting

62*Ibid.*

63 Art. 3(6) & 3(7) Kyoto Protocol

64Cullet, P., "Equity and Flexibility Mechanisms in the Climate Change Regime: Conceptual and Practical Issues," *Review of European Community and International Environmental Law*, Vol. 8, No. 2, p. 171.

comparative advantage opportunities." [65] However, such flexibility has been controversial. In general, the European Union and developing countries have favoured less access to flexibility mechanisms in the interest of "protecting the environmental integrity of the reduction commitments," as such flexibility could encourage Annex B Parties to meet their emissions reduction target without domestic efforts.[66] By contrast, most Annex B Parties have argued against such restrictions as impeding economic efficiency."[67]Therefore, the principle of common but differentiated responsibility is embedded in the concept of the mechanisms in that developing countries without commitments under the Protocol are also asked to collaborate to achieve the common goal of stabilising the GHG concentrations by providing lower-cost options to the Annex B Parties. Article 6 Kyoto Protocol sets out the Joint Implementation mechanism, according to which any Annex B Party with quantified GHG emission limitation or reduction commitments can earn emission reduction units (ERUs) resulting from projects implemented in another Annex B Party, aimed at "reducing anthropogenic emissions by sources or enhancing anthropogenic removals by sinks of greenhouse gases in any sector of the economy". Like the Joint Implementation, the CDM is also a project-based mechanism as Annex B Parties can earn the CERs accruing from projects. However, the difference is that under the CDM, the Annex B Parties earn such emissions units by implementing projects in non-Annex I Parties, which are developing countries. The article 17 of the Protocol allows Emissions Trading among the Annex B Parties for the purposes of fulfilling their emission limitation or reduction commitments. The Emissions Trading mechanism allows countries to sell or buy their "assigned amount units(AAUs)", which are quantified levels of allowed emissions for each of the Annex B Parties in order to meet their reduction or limitation targets countries that are over their targets can buy AAUs from other countries which have spare AAUs.[68] In the Emissions Trading mechanism, countries can trade not only AAUs but also ERUs and CERs, which are accrued from the other two flexible mechanisms. As the Kyoto protocol does not establish a single universal emissions trading scheme but instead sets

65*Ibid.*, p.171

66 Wirth, D. A., "The Sixth Session (Part Two) and Seventh Session of the Conference of the Parties to the Framework Convention on Climate Change: Current Developments," *American Journal of International Law*, Vol.96, 2002, pp.648-660, cited in Gordon, R., "Climate Change...," op. cit., p.1588.

67Gordon, R., "Climate Change...," op. cit., p.1588.

68UNFCCC, *International Emissions Trading*, accessed 30 July 2015, http://unfccc.int/kyoto_protocol/mechanisms/emissions_trading/items/2731.php.

out a framework for the mechanism of emissions trading, there have been different emissions trading schemes in operation, among which the European Union emissions trading scheme is the biggest.

3.2. Clean Development Mechanism (CDM) [69]

Of the three flexible mechanisms, the CDM seems to be the most relevant instrument regarding equity concerns in climate change. Joint Implementation and Emissions Trading only engage countries with emission reduction or limitation commitments under the Kyoto Protocol and therefore, have rather indirect and most likely smaller implications for developing countries. However, the CDM directly engages developing countries in its operation as recipient countries of the accredited projects. According to Article 12 of the Kyoto Protocol, which defines the CDM, the objective of the mechanism is not only to assist Annex B Parties in achieving compliance with their quantified emission limitation and reduction commitments but also to assist non-Parties to the Annex I of the UNFCCC, which are developing countries, in achieving sustainable development. The underlying idea is that by developed countries implementing certain projects with sustainable development objective, the recipient developing countries can benefit not only from the new investment itself such as increased economic activity, job creation and improvement of livelihoods but also transfer or diffusion of environment-friendly technologies.[70] After Article 12 of the Protocol introduced the idea of the new mechanism, modalities and procedures were elaborated to ensure transparency, efficiency and accountability of the CDM at the first session of the Conference of the Parties.

3.2.1. Modalities and Procedures

The institutional framework for the governance of the CDM comprises three important

69UNFCCC, The Mechanisms under the Kyoto Protocol, accessed 30 July 2015, http://unfccc.int/kyoto_protocol/mechanisms/items/1673.php;

UNFCCC, Clean Development Mechanism, accessed 30 July 2015, http://cdm.unfccc.int/index.html, http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php.

70UNFCCC, CDM benefits, accessed 30 July 2015, http://cdm.unfccc.int/about/dev_ben/index.html.

bodies. Under the overarching authority of the COP/MOP, which provides general guidance to the CDM, the Executive Board manages and supervises the CDM.[71]In addition, operational entities, which are accredited by the Executive Board and designated by the COP/MOP, perform functions such as validation of proposed CDM project activities, verification and certification of CERs. The Executive Board as well as the operational entities is accountable to the COP/MOP.[72]A fundamental condition for Annex B Parties, as well as non-Annex I host Parties, to qualify for participation in the CDM, is the designation of a specific national authority.[73] Any Annex I Party with an emission reduction or limitation commitment in Annex B of the Kyoto Protocol can participate in CDM and therefore, is eligible to use CERs resulting from CDM project activities provided that it meets several eligibility requirements. These include *inter alia*, having in place a national system for the estimation of anthropogenic emissions; having in place a national registry; and having submitted annually the most recent required inventory.[74]

For a project activity to accrue CERs under the CDM, it needs to go through the processes of validation, registration, monitoring, verification, certification and issuance of CERs. Validation is 'the process of independent evaluation of a project activity' by a designated operational entity selected by project participants against the requirements of the CDM.[75]Along with the project design document, some of the requirements are (i) comments by local stakeholders have been invited and explanation on how due account was taken of those comments, (ii) documentation on the analysis of the environmental impacts and in case those impacts are considered significant, environmental impact assessment, (iii) that the project activity is expected to result in a GHG emissions reduction while fulfilling the criterion of additionality.[76] During the process of

71 Art. 2, 5 Kyoto Protocol, respectively.

72 Art. 20, 26, 27 Kyoto Protocol.

73 Art. 29 Kyoto Protocol.

74Decision 3/CMP.1 (2005), Modalities and procedures for a clean development mechanisms defined in Article 12 of the Kyoto Protocol, para. 31, UN DocFCCC/KP/CMP/2005/8/Add.1 (30 March 2006).

75Art. 35 Kyoto Protocol

76 Art. 37 Kyoto Protocol."Article 37.(d) The project activity is expected to result in a reduction in anthropogenic emissions by sources of greenhouse gases that are additional to any that would occur in the absence of the proposed project activity, in accordance with paragraphs 43–52 below.""Article 43. A CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity."

validation, the designated operational entity shall have received "written approval of voluntary participation from the designated national authority of each Party involved, including confirmation by the host Party that the project activity assists it in achieving sustainable development."[77] Furthermore, the designated operational entity needs to receive comments on the requirements from Parties, stakeholders and UNFCCC accredited non-governmental organisations, before making a decision on whether or not the project activity should be validated.[78] Then, the designated operational entity submits the validation report to the Executive Board and requests registration if it determines that the project activity should be validated.[79]

Registration, in turn, means the "formal acceptance by the Executive Board of a validated project as a CDM project activity" and therefore, the prerequisite for later processes such as verification, certification and issuance of CERs.[80] Once a project activity is registered and in operation, the project participants are required to implement the monitoring plan, submitted as part of project design document.[81] The monitoring plan needs to include the collection and archiving of data necessary for determining the baseline of GHG emissions and estimating GHG emissions occurring within the project, procedures for the periodic calculation of GHG emission reduction, quality assurance and control procedures for the monitoring process, etc.[82]

Once a monitoring report is submitted to the designated operational entity by the project participants, the designated operational entity will review and determine the monitored reductions in GHG emissions as a result of a CDM project activity, which will be the 'verification' process.[83] Then the designated operational entity will certify that during a specified time period, a project activity achieved the reductions in GHG emissions. It will then request to the Executive Board issuance of CERs equal to the verified amount

77Article 40(a) Kyoto Protocol
78Article 40(c), (d) Kyoto Protocol
79Article 40(a), (f) Kyoto Protocol
80Article 36 Kyoto Protocol
81Article 53, 58 Kyoto Protocol
82Article 53, Kyoto Protocol
83Article 60, 61 Kyoto Protocol

of reductions of GHG emissions to the Executive Board.[84] The issuance of CERs will be final 15 days after the receipt of the request, unless a review is requested of the proposed issuance of CERs regarding issues of fraud, malfeasance or incompetence of the designated operational entities is requested.[85]

3.2.2. Current profile of the projects

According to the CDM pipeline,[86]there are 8,602 CDM projects as of 1 July 2015, among which 949 projects are in validation process, 6 projects are in the process of registration and 7,647 projects are registered.[87] The CERs from 2,804 projects have been issued, out of the total 7,647 registered projects. As a result of a CDM project, CERs, one metric tonne of carbon dioxide equivalent, are issued, depending on its contribution towards emission reductions. As of 1 July, 2015, 1,635 million CERs have been issued. The total of 2,221 million CERs is expected to accrue from the crediting period 2008-2012, from which 1,461 million CERs are already issued. For the period of 2013-2020, 4,674 million CERs are expected.

Status of CDM projects in the project cycle	**Number**
At validation	**949**
Total in the process of registration	**6**
Request for registration	5
Request for review	1
Correction requested / Under review	0
Total registered	**7647**
Registered, no issuance of CERs	7647
Registered, CER issued	0
Total included in pipeline	**8602**

84Article 64 Kyoto Protocol

85Article 65 Kyoto Protocol

86CDM pipleline(http://www.cdmpipeline.org) is the official website run by the Centre on Energy, Climate and Sustainable Development of the UNEP DTU Partnership, where the status of CDM projects is updated on a regular basis. This section is based on the data from the CDM pipeline website, as of 1 July, 2015.

87The CDM Pipeline includes CDM projects from the validation stage, from which the 30 days of the public comment period starts. Therefore, the total of 8,602 CDM projects excludes projects at the stage of designing Project Idea Notes or at any stage before validation as well as projects withdrawn after the validation stage, rejected by the Executive Board or given a negative validation. From Fenhann, J., *Guidance to the CDM & JI Pipelines*, February 2008, http://www.cdmpipeline.org/publications/GuidanceCDMpipeline.pdf.

Withdrawn	62
Rejected by EB	272
Validation negative by DOE	267
Validation terminated by DOE	2022
Total number of different projects	**11225**

Table 1. The number of CDM projects[88]

As of the 1 July, 2015, 114 countries in total have hosted or are expected to host at least one CDM project. However, the distribution of the 8,602 projects among those countries is starkly imbalanced. The number of the projects which will have been hosted by the top 10 countries represents 85.3% of the 8,602 projects, with China alone having hosted about 45.6% of the projects. By contrast, the 121 projects have been hosted by 32 countries of the so-called group of Least Developed Countries (LDCs), which accounts for a mere 1.4% of the 8,602 projects.[89] Furthermore, the Small Island Developing Countries (SIDCs) have hosted 39 projects.[90] The Figure 1 below demonstrates the CDM projects in top 10 host countries and LDCs as a fraction of total projects in the CDM pipeline.

88UNEP DTU Partnership, *Status of CDM projects(table)*, CDM/JI Pipeline Overview Page, accessed 10 July 2015 from http://www.cdmpipeline.org/overview.htm.

89The list of LDCs is reviewed every three years by the United Nations Economic and Social Council, taking into account per capita income, human asset indicators such as nutrition, health, school enrolment and literacy and economic vulnerability indicators such as natural and trade-related shocks and physical and economic exposure to shocks. The most recent review was held in 2012 and currently 48 countries are designated as LDCs. For more information about the UN recognition of LDCs, see http://unctad.org/en/Pages/ALDC/Least%20Developed%20Countries/UN-recognition-of-LDCs.aspx and for the current list of LDCs, see http://www.un.org/en/development/desa/policy/cdp/ldc/ldc_list.pdf.

90Although there is no official list of SIDCs designated by the UN as the case of LDCs, the UN recognises the unique and particular vulnerabilities and development needs of SIDCs given their small size, remoteness from large markets and high economic vulnerability to economic and natural shocks. For analytical purposes, the United Nations Conference on Trade and Development has an informal list of 29 SIDCs. See http://unctad.org/en/Pages/ALDC/Small%20Island%20Developing%20States/UN-recognition-of-the-problems-of-small-island-developing-States.aspx.

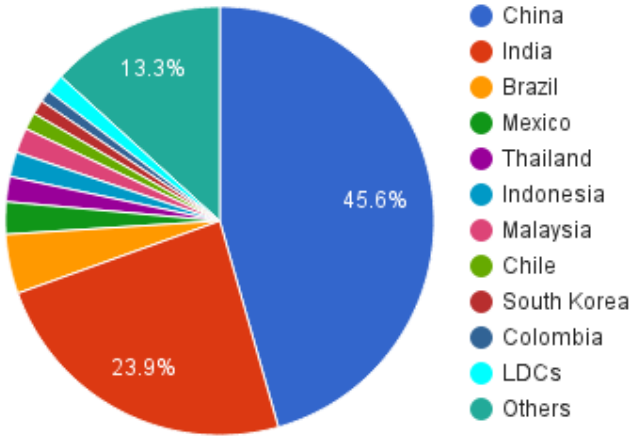

Figure 1. CDM projects in top 10 host countries[91]

The concentration of the CDM projects mainly in China, India, Brazil and Mexico has been witnessed since the initiation of the CDM, although the degree of the concentration and the share of projects among those four countries varied throughout the period. The fraction hosted by China, India, Brazil and Mexico was about 50% when the CDM launched, rose to around 85% in 2006. In the same line, when looking at the distribution of the projects by regions, the Asia and Pacific region has been the dominant host of CDM projects (82% of the total projects) and the share by China and India represents about 85% of the projects hosted in the region. Latin America comes next, with the fraction of Brazil and Mexico accounting for 53% of the projects in the region. Asia and Pacific region and Latin America have hosted 95% of the projects. Africa has hosted 2.8% of the total projects with South Africa hosting 28.7% of the projects in the region. As paragraph 4.(c) of the Decision 3/CMP.1 suggests, such inequitable distribution of project activities is not something totally unexpected.[92]However, despite this provision requiring the COP/MOP to review the

91This is an original graph, analysed with the data accessed 10 July 2015 from www.cdmpipeline.org/publications/CDMPipeline.xlsm.

92According to Decision 3/CMP.1 (2005), para.4.(c) 'The COP/MOP shall review the regional and sub-regional distribution of CDM project activities with a view to identifying systematic or systemic barriers to their equitable distribution and take appropriate decisions.' UN DocFCCC/KP/CMP/2005/8/Add.1 (30

regional and sub-regional distribution of CDM project activities, such a trend did not weaken more recently, either.

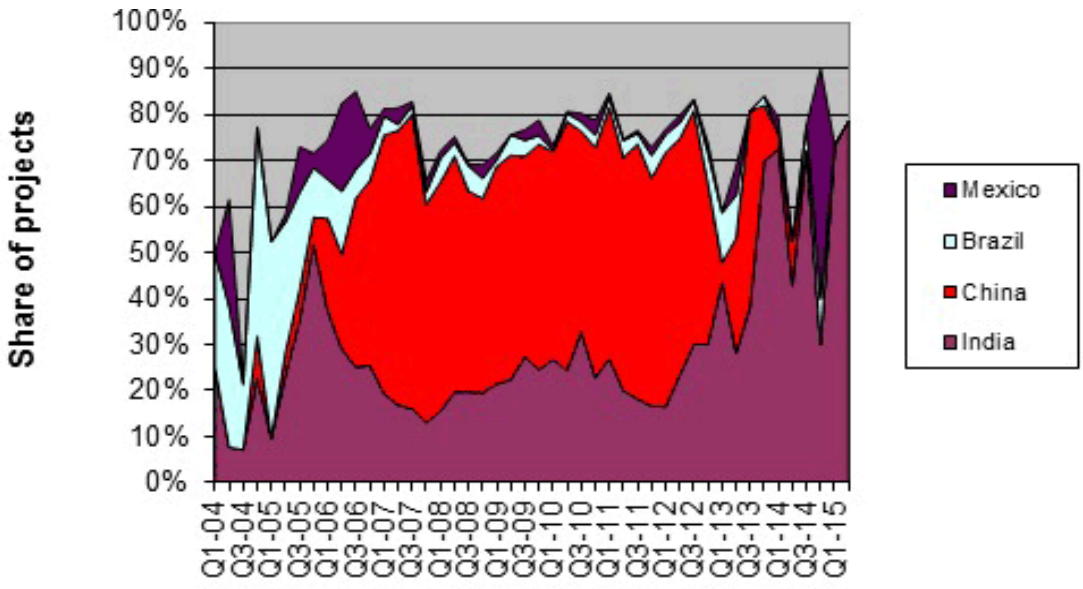

Figure 2. Percentage of CDM Projects hosted by Brazil, Mexico, India, China[93]

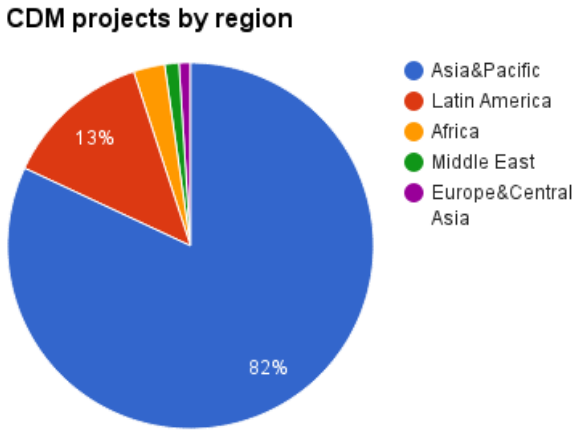

Figure 3. Distribution of CDM projects by region[94]

March 2006).

93UNEP DTU Partnership, *All CDM projects in the Pipeline in Brazil + Mexico + India + China as a fraction of all projects(graph)*, CDM projects by host region, accessed 10 July 2015 from http://www.cdmpipeline.org/cdm-projects-region.htm#7.

94This is an original graph, analysed with the data accessed 10 July 2015 from www.cdmpipeline.org/publications/CDMPipeline.xlsm.

According to the UNFCCC classification of types of projects, 26 different types can be categorised into 8 categories - HFCs&PFCs&SF&N20 reduction, Renewables, CH_4 reduction & Cement & Coal mine/bed, Supply-side energy efficiency, Fuel switch, Demand-side energy efficiency, Afforestation & Reforestation and Transport. Renewables has been the predominant type of CDM projects, representing about 71% of the total active projects(6,109), followed by CH4 reduction & Cement & Coal mine/bed (15%; 1,317 projects) and Supply-side energy efficiency (6%; 525 projects). The three most common types of projects have been wind power (31%; 2,627 projects), hydropower (26%, 2,241 projects) and biomass energy (9%; 771 projects), all of which fall into the renewables category. Interestingly, although HFCs, PFCs, SF&& N_2O reduction projects only account for a mere 2% of the projects but represent 29% of the total CERs by 2012.[95]

Project type category	**Number**	**Percentage**
HFCs, PFCs, SF&& N2O reduction	146	1.70%
Renewables	6109	71%
CH4 reduction & Cement & Coal mine/bed	1317	15%
Supply-side EE	525	6%
Fuel switch	133	1.50%
Demand-side EE	269	3.10%
Afforestation & Reforestation	71	0.80%
Transport	32	0.40%

Table 2. CDM projects by categories[96]

95UNEP DTU Partnership, *CDM projects by type*, 30 July 2015, http://www.cdmpipeline.org/cdm-projects-type.htm.

96UNEP DTU Partnership, *CDM projects grouped in types(table)*, accessed 10 July 2015, from http://www.cdmpipeline.org/cdm-projects-type.htm

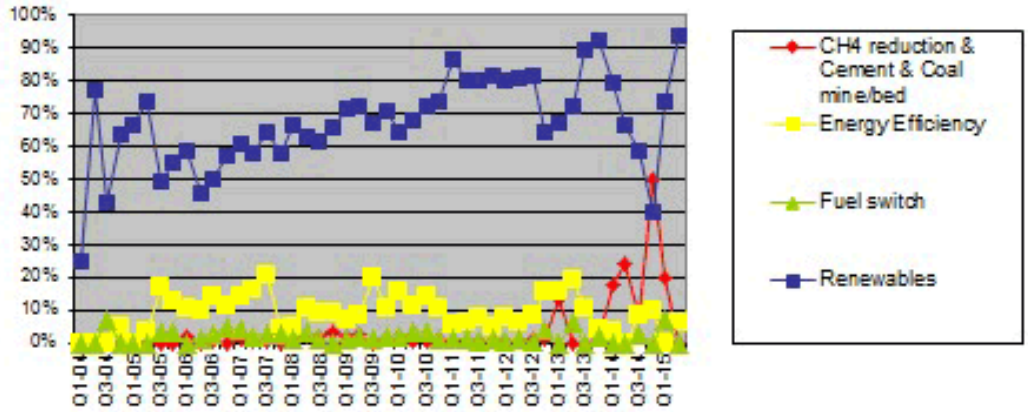

Figure 4. Trend in number (%) of CDM projects in each category of types[97]

3.2.3. Equity concerns about CDM structure

On the basis of the previous analysis of procedures and modalities of CDM as well as current profile of CDM projects, several concerns regarding equity and distributional justice can be detected.

Firstly, CDM projects are highly concentrated on large industrialising countries whereas LDCs and Small Island States are marginalised which actually are in most need of external help for sustainable development and such concentration is a predictable result of how the CDM is constructed. CDM projects seek investment from private entities, which are motivated by low risk and high potential returns by nature.[98] It seems that important factors that influence CDM investment flows are the capacity for cheap emissions reduction, the general investment climate in the host country and the host country's institutional capacity to implement CDM projects.[99] Most of all, as CDM projects should reduce GHG emissions below a baseline level to accrue CERs, largely industrialising countries of non-Annex I parties which already have substantial emissions problems - such as China, India and Brazil - are more attractive to investors than LDCs which are only poorly industrialised and therefore, emissions reduction

97 UNEP DTU Partnership, *Number (%) of CDM projects in each category of types(graph)*, accessed 10 July 2015, from http://www.cdmpipeline.org/cdm-projects-type.htm

98Nelson, P., "An African Dimension to the Clean Development Mechanism: Finding a Path to Sustainable Development in the Energy Sector", *Denver Journal of International Law and Policy*, Vol. 32, 2004, pp.615-652.

99Gordon, R., "Climate Change...," op. cit., p.1614.

would result more costly in the end.[100] In addition, because a CDM project is funded by investment, the general investment climate is as important to secure CDM investment as to attract foreign investment in general. For example, big developing countries, which have succeeded in hosting a significant amount of foreign investment, generally have good infrastructure, reasonably efficient administration procedures and political stability whereas most Sub-Saharan countries would lack such components. Additionally, to host a CDM project, a recipient country should have a designated national authority which would confirm its contribution towards sustainable development and approve the project. However, establishing a designated national authority requires technical expertise as well as resources, which might not be easy for small LDCs to have.[101] Considering all these factors, the fact that the LDCs are in most need of investment for sustainable development could only morally appeal to investors whose main interest is to make profits.

Secondly, the designated operational entity does not determine itself whether the project activity assists in achieving sustainable development nor the UNFCCC provides any guideline including what sustainable development is in this context. Therefore, determining whether the project activity contributes to sustainable development as well as defining sustainable development is at the host Party's full discretion. Ironically, applying a rather strict criterion of sustainable development would not be necessarily in the interest of the host Party, considering that hosting a CDM project would be a great opportunity to have new investment in the country, which most countries are very keen on these days as a way to revitalise the economy. Indeed, it is known that non-Annex I countries like China and India opposed to the suggested idea of determining at international level, whether or not a project activity contributes to sustainable development. On top of this, the monitoring process required is mainly focused on the estimating the GHG emissions and calculating the reduction of GHG emissions with the ultimate objective of issuing the appropriate amount of CERs, which sidelines monitoring the other environmental and social secondary effects that the project activity brings about to the local community or the host country at large. Furthermore, even the monitoring process of the GHG emissions has been criticised that it is not strict enough.

100*Ibid.*, p.1615; Nelson, P., "An African Dimension...," *op. cit.*, p.633.
101Gordon, R., "Climate Change...," op. cit., p.1616.

4. Case Study

Compared to the previous chapter, where structural justice of the CDM was looked into, whether individual CDM projects have been serving the climate justice, by analysing sustainable development impacts of the projects. The necessity for analysing sustainable development impacts of the CDM comes from the fact that the sustainable development objective of CDM is one of the specific mechanisms through which the Kyoto Protocol attempts to ensure equity of the current climate regime. In view of the absence of a globally shared normative concept of sustainable development, the projects will be appraised from an economic, environmental and social perspective, as most project design documents for CDM-registered projects do.[102] Mainly macro-economic benefits, which are factors to boost overall national economy, will be counted towards the economic aspects, such as increasing national energy supply, triggering investments, and developing infrastructure. By comparison, increasing social wealth of local communities where a specific project is carried out will be considered as social aspects of sustainable development, such as job creation and local community involvement. For any project to be considered meaningful in bringing positive sustainable development impacts should have positive impacts in all three aspects.

Two case studies to be discussed in this chapter are among the most controversial CDM projects and the most frequently discussed by environmental activists and academics - '***Barro Blanco Hydroelectric Power Plant Project***' in Panama and '***Recovery of associated gas that would otherwise be flared at Kwale oil-gas processing plant in Nigeria.***' Analysing only two projects of 7,647 registered CDM projects as of 1 July 2015 would not be able to make a general assessment of the CDM's contribution towards sustainable development. However, analysing these case studies that there is a failure to result in positive sustainable development impacts in host countries, even if only in a few cases, complemented by the theoretical considerations put forward in

102The Project Design Document for the BarroBlacoproject(p.4) states that "the hydroelectric power plant project of Barro Blanco contributes from the social, environmental and economic point of view to the development of the districts of Tolé and Müna, so that we can affirm that this is an eligible project in terms of the methods and procedures of the clean development mechanism (CDM) set forth by the UNFCCC."Barro Blanco Hydroelectric Power Plant Project, *Project Design Document*, 27 April 2010, p.2,https://cdm.unfccc.int/filestorage/B/O/L/BOLWGNA7FS4YKM23JCHPQ695ZIU8ET/Barro%20Blanco%20PDD%20v3.08?t=b2F8bnhoOHZhfDBcSqzLHo8HPRaHvmR0nKoX.

previous sections, could at least question the current CDM's capacity to achieve sustainable development.

4.1. Barro Blanco Hydroelectric Power Plant Project

4.1.1. Project background

The Barro Blanco Hydroelectric Power Plant Project ("Barro Blanco project") foresees building a hydroelectric power plant, with a total capacity of 28.84 MW, utilising the capacity of the Tabasara River, which flows through the autonomous region (known as Camarca) in Panama where the Ngäbe-Bugle indigenous peoples live.[103] Initially, the project aimed to construct a hydroelectric power plant with a capacity of 19.99 MW but it was later concluded feasible to increase the installed capacity to 28.84 MW.[104] Although the plans for the current project by the developer Generadora del Istmo, S.A.(GENISA) only came to appear in 2007, an earlier attempt to build the same hydroelectric power plant in the same area already began in 1997 by the consortium Tabasara, whose concession was later passed on to GENISA.[105] A series of protests had already taken place by the indigenous Ngäbe-Bugle people during the years between 1999 and 2003 regarding the predecessor project and then resumed as plans for the Barro Blanco project were in place and the construction began. Despite the persistent opposition by the Ngäbe people and the lack of consultation with the affected Ngäbe communities, the Asociación Española de Normalización y Certificación (AENOR) requested validation for carbon credits for the 19 MW project under the Kyoto Protocol's Clean Development Mechanism.[106] In 2009, GENISA decided to increase the capacity of the dam to 28.84 MW, which accompanied an increase of the reservoir as well as the maximum flood level, but they did not carry out additional environmental impact assessment. In March 2011, the construction work for the Barro Blanco project began without consent from the affected Ngäbe-Bugle communities or

103*Ibid*., p.2.
104*Ibid.*, p.2.
105International Rivers, Chronology of Events for Barro Blanco Dam(Panama), accessed 6 August 2015, http://www.internationalrivers.org/chronology-of-events-for-barro-blanco-dam-panama.
106*Ibid.*

further consultation.[107] Later that year, the project was officially approved under the CDM mechanism, despite concerns raised by domestic and international groups about the accuracy of the environmental impact assessment and insufficient local stakeholder consultation.[108] In February 2012, there was a huge confrontation between the local police and the affected communities, with the latter blocking the Inter-American Highway, which reportedly resulted in four deaths. In addition, some police officers who participated in the suppression of this protest were accused of rape and sexual aggression.[109] In March 2012, an agreement was reached between the Government of Panama and the c*omarca* Ngäbe-Bugle that the previous environmental impact assessment report would be revised and a field mission will be sent to verify the impacts.[110] During this revision and verification, a significant gap was confirmed between the Environmental Impact Assessment report and what actually had happened, including "lack of agreement with the affected communities, absence of an approved archaeological management plan, repeated failures to manage sedimentation and erosion, poor management of solid and hazardous waste, and logging without permission."[111]Based on this finding, the Government of Panama, in February 2015, finally decided to temporarily suspend the construction of the dam, which had been demanded by the indigenous peoples who would be directly affected by flooding caused by the dam construction.[112]

4.1.2. Implications on sustainable development

This section explores the implications the Barro Blanco project has brought on sustainable development of Panama. As the project is temporarily suspended, the realised sustainable development impacts on the completion of the project cannot be

107*Ibid.*
108An environmental impact assessment conducted in 2007, though approved by Panama's environmental government agency ANAM, has been criticized for misrepresenting the socio-environmental impacts of the project. The only public consultation on record was the survey for the 19 MW version in which persons from other communities were consulted but not the Ngäbe Bugle affected communities.
109*Ibid.*
110*Ibid.*
111Centre for Research on Multinational Corporations, *Panama Suspends Construction of FMO-funded Barro Blanco hydroelectric dam over environmental and human rights abuses*, 11 February 2015, http://somo.nl/news-en/panama-suspends-construction-of-fmo-funded-barro-blanco-hydroelectric-dam-over-environmental-and-human-rights-abuses.
112*Ibid.*

discussed. However, expected impacts as well as witnessed impacts in the course of construction until it was suspended will be discussed.

Economic impacts

Construction of a hydroelectric power plant could benefit populations in general by increasing energy generation capacity, thus, making energy available to more populations. According to the Project Design Document submitted to the CDM executive board, the construction of Barro Blanco dam is expected to increase Panama's installed energy generation capacity by 2.35%.[113] It will also increase the presence of energy generated with autochthonous natural resources and therefore, replace the energy generation with hydrocarbons, which then would contribute to stabilising energy price, by protecting Panama's national energy market from the rising cost of hydrocarbons in the international markets.[114] As the project was suspended during its construction, none of these economic benefits have been witnessed but if it was to be completed, there would be positive impacts at macro-economic level.

Environmental impacts

Like all other projects approved under the CDM mechanism, the Barro Blanco project is expected to contribute to reducing GHG emissions. According to the Project Design Document, the electrical energy which is to be generated by Barro Blanco dam will replace the energy which would be otherwise partially generated by fossil fuel run plants in the absence of the Barro Blanco plant.[115] However, some negative environmental impacts were already expected to take place during the construction phase. These include the impacts that would cease to exist with the suspension of completion of construction phase, such as the generation of dust or noise by the construction works.[116] The non-reversible impacts, such as impacts on the vegetation, flora and fauna, were also expected, including the loss of the plant cover and tree species on the banks of the river and the decrease in the space available for native fauna.[117] The Project Design Document also anticipated the potential start of

113Barro Blanco Hydroelectric Power Plant Project, *Project Design Document,* op. cit., pp.2-3.
114*Ibid.*,pp.2 -3.
115*Ibid.*, p.3
116*Ibid.*,p.53
117*Ibid.*, p.53

eutrophication processes and impacts on the fluvial plant and animal life during operating phase.[118]

Bigger negative environmental impacts were neither discussed in the Project Design Document nor in the Environmental Impact Assessment carried out in 2007. However, the report prepared by a UNDP mission in 2012 to assess the validity of the previously performed Environmental Impact Assessment affirmed the project´s negative impacts on the environment that the dam would convert the flowing Tabasara river into a stagnant lake ecosystem, affecting the Ngäbe's diet and means of subsistence.[119] This is in line with what the Ngäbe-Buglé protesters had been claiming that the project would destroy the river ecosystem that they have been relying on over generations for fishing.[120] Furthermore, according to the Swyter's article, local fishermen said they had seen the riverbed become filled with sediments, which had affected the types of fish being caught and an anonymous worker from GENISA witnessed that a lot of waste had been going directly into the river.[121]

Social impacts

The Project Design Document states several positive impacts in terms of social wealth. First, the construction of Barro Blanco dam would contribute to regional development including local and regional institutional strengthening and an increased standard of living, given that the affected areas are currently with a low standard of living and lacking the residents' basic needs such as sanitation and education. Second, new jobs would be created during the course of construction and the later stages of operation or management as GENISA had agreed to the clauses such as "exhausting all the necessary steps to ensure that at least 60% of staff for unskilled work in activities related to the contract come from the boroughs or districts of the province where the project is

118*Ibid.*, p.53
119Centre for International Environmental Law, *UN Representative on IndigenousPeoplesAsked to InvestigateHumanRightsViolationsCausedbyPanama's Barro Blanco Dam*, 18 June 2013, http://www.ciel.org/Law_Communities/BarroBlanco_18Jun2013.html.
120Few for Change, *Barring Barro Blanco: A Step Toward Justice for the Ngäbe-Buglé*, September 7, 2013, http://www.fewforchange.org/blog/2013/09/barring-barro-blanco-a-step-toward-justice-for-the-ngabe-bugle.
121Swyter, N., *Panama: TheVillagesThatCan't Be Bought*,PulitzerCenter on Crisis Reporting, 6 August, 2013, http://pulitzercenter.org/reporting/central-america-panama-ng%C3%A4be-bugl%C3%A9-indigenous-tribe-hydroelectric-dam-tabasar%C3%A1-river-company-genisa-barro-blanco-villages-residents-education-mama-tata-environment.

developed."[122] Third, direct financing would be given from the developer to the affected municipalities, which would allow them to pursue their own development projects.[123] Fourth, the quality of life of the affected populations situated in the middle of the river Tabasara would be enhanced through technology transfer and implementation of environmental educations programmes and technical training courses, which would equip the populations with the capability to manage the project area.[124]

Despite the aforementioned potentially positive impacts, the Ngöbe-Buglé peoples residing near the river Tabasara have been more concerned about the direct negative impacts they would suffer once the Barro Blanco dam is completed, including flooding not only their homes and schools, which would force the people living on the shores of the river to leave their land to which they have strong cultural ties, but also religious, archaeological and cultural sites in the Ngöbe-Buglé *comarca.*[125] However, the Environmental Impact Assessment conducted in 2007, which was approved by the Panamanian government´s environmental agency, Autoridad Nacional del Ambiente de Panamá (ANAM), expected that only 6.7 hectares of c*omarca* lands would be flooded and no communities would be displaced.[126] In contrast, the UNDP´s fact-finding mission in 2012, which assessed the validity of the previous Environmental Impact Assessment, confirmed more severe level of land flooding and necessary displacement.[127]The study carried out in 2013 by the joint verification mission to assess hydraulic, ecological and economic aspects of the Barro Blanco project concluded that the direct impacts of the dam construction would affect the environment and the Ngobe communities as a whole and should be mitigated.[128]

Another big social impact has been on the human rights of the Ngöbe-Buglé peoples. After a series of alleged human rights violation drew international attention, the UN's Special Rapporteur on the Rights of Indigenous Peoples, James Anaya, visited Panama

122Barro Blanco Hydroelectric Power Plant Project, *Project Design Document*, op. cit., p.3.
123*Ibid.*,p.3
124*Ibid.*,p.4
125Centre for International Environmental Law, *UN Representative..., op. cit.*
126Kennedy, J., "Tabasará River Communities Struggle to Halt Panamanian Dam Project," CorpWatch, 10 August, 2013, http://www.corpwatch.org/article.php?id=15861.
127Centre for International Environmental Law, *UN Representative..., op. cit.*
128UN Doc A/HRC/27/52/Add.1, Report of the Special Rapporteur on the rights of indigenous peoples, James Anaya, Appendum, the status of indigenou peoples' rights in Panama, 3 July 2014, para.45.

in July 2013 to investigate claims of international law violations.[129] The report prepared by the UN Special Rapporteur pointed out that "numerous allegations of violations of the rights of indigenous peoples have been made as a result of the development of large-scale hydroelectric and other investment projects in Panama's indigenous territories,"[130] taking the Barro Blanco project as one example, among others. It considered that "lack of an appropriate governing framework for consultations with indigenous communities" has led to such alleged human rights violations.[131] It is believed that the chief of the c*omarca* privately met with GENISA, signed over the land belonging to the Ngöbe-Buglé communities without community consultation and made the agreements in which the Ngöbe-Buglé land was relinquished to GENISA.[132] Despite GENISA´s claim that a meeting for public consultation in February 2008 was widely advertised and its denial of the Ngöbe-Buglé argument that they were not invited to a public forum, no meeting was held within the c*omarca*, and the community was not directly contacted about the meeting.[133]The 2013 study by the joint verification mission also pointed out the appropriate consultations with the communities to be affected had not been carried out and the impacts had not be clearly explained or understood.[134]

There also have been human rights violations in suppressing the indigenous protesters as four people were killed in 2012, allegedly in confrontation with the police and sexual violence seemingly took place, too. Although this specific abuse of human rights was not committed by GENISA but by the local authorities, such confrontation would not have taken place at all if the developer had properly carried out consultation with the affected people and considered their opinion in due diligence.

4.1.3. Conclusion

The Project Design Document self-confidently states that the quality of life of the inhabitants will increase, "as a result of the number of jobs available and the improvement in the conditions of the quality of water and river banks, which will

129Centre for International Environmental Law,*UN Representative..., op. cit.*
130UN Doc A/HRC/27/52/Add.1,*op. cit.*, para. 39.
131*Ibid.*,para. 41.
132Few for Change, *Barring Barro Blanco..., op. cit.*
133Swyter, N., "Panama...," *op. cit.*
134*Ibid.*

provide new leisure areas to the community."[135] However, such analysis was biased as it did not take into account huge negative impacts that could be brought about to the inhabitants particularly during the course of construction including displacements without adequate mitigation measures in place.

In collecting stakeholders' opinion as part of preparation for the Environmental Impact Assessment report in 2007, only 58 surveys were carried out in 13 affected communities and there is no explanation regarding on which ground the surveyed were selected.[136]Therefore, despite the Project Design Document's argument that the 50% of the surveyed were in favour of the Barro Blanco project, it is hard to rely on these surveys, as they may not represent the general views of the 13 affected communities.[137] In the end, as the project was suspended during its construction, all the potential benefits pointed out by the surveyed such as new jobs, cheaper electricity charges, more available water, improved standard of living, new and better roads, were not realised whereas most of the difficulties that inhabitants worried about occurred – expropriation of the land, damage to the environment, displacements and temporary disruptions.[138]

135 Barro Blanco Hydroelectric Power Plant Project, *Project Design Document*, op. cit., p.56.
136 *Ibid., p*.55
137 *Ibid.*, p.56
138 *Ibid.*, p.56

4.2. Recovery of associated gas that would otherwise be flared at Kwale oil-gas processing plant in Nigeria

4.2.1. Project Background

Gas flaring is one of the biggest environmental issues in Nigeria. Nigeria is known to have the Africa's largest natural gas reserves but to flare the largest amount of toxic orange flares, as a byproduct of its oil industry, which produces about 2 million barrels a day.[139] These gas flares not only result in emissions of carbon dioxide (CO2) and uncombusted methane (CH_4) and but could also be used for power generation if trapped. However, the Nigerian populations are short of power supply as it is cheaper to flare gas than to tap a disorganised local market.[140] Underdeveloped domestic market, lack of effective regulation, lack of local infrastructure, remoteness of location, technical limitations and uncertainty have been identified as fundamental causes of gas flaring in Nigeria.[141]Because of the harmful environmental effect of gas flaring and the wasting of potential energy source, the gas flaring has been prohibited since 1984 with the enactment of Gas Reinjection Act. In response to this Act, the Nigerian Agip Oil Company (NAOC), a subsidiary of Eni Exploration and Production which had established its oil and gas processing plant in Okpai-Kwale region, launched a gas recovery and utilisation project in 1987.[142]

In 2005, with the CDM scheme under the Kyoto Protocol in place, the NAOC sought to register this project and in November 2006, it was registered as a CDM project under the name of the Recovery of associated gas that would otherwise be flared at Kwale oil-gas processing plant, Nigeria ("Kwale project").[143] The Kwale plant has been receiving

139Mark., M. "Nigeria's penalty for gas flaring will not curb emissions, say campaigners," *Guardian*, 31 May 2012, http://www.theguardian.com/environment/2012/may/31/nigeria-penalty-gas-flaring.
140*Ibid.*
141Agbonifo, P. E., "Reforming the Clean Development Mechanism(CDM) to Tackle the Environmental Policy Gap in the Nigeria Oil and Gas Industry," *Journal of Sustainable Development in Africa*, Vol. 17, No. 2, 2015, p.70.
142Oilwatch Africa and Environmental Rights Action/Friends of the Earth Nigeria, *Nigeria: Learning Clean Development Mechanism(CDM) Lessons*, Policy Brief #2, September 2012, p.3, http://www.eraction.org/publications/learningcdmlessons.pdf.
143Eni and NAOC, *Monitoring Report for CDM Project No. 0553: Recovery of associated gas that would otherwise be flared at Kwale oil-gas processing plant, Nigeria*, 10 September 2010, https://cdm.unfccc.int/filestorage/5/B/4/5B4VENXRU6ZPK1HS9CIDJ0YLMGA8QT/New%20MR%20CDM%20Kwale%20R01.pdf?t=Q1Z8bnhoaWg0fDAw-mkd6vppVOVapcVl3WmE.

gas and oil from fields in Okpai-Beniku-Kwale and a large portion of associated gas produced from the oil fields has been flared upon separation from the oil at the Kwale plant, in the absence of any economically viable outlet for this gas.[144] This project aims at recovering, capturing and utilising associated gas that would otherwise be flared at the Kwale oil and gas processing plant in Delta State, Nigeria.[145] In the project scenario, the captured gas will be marketed for use by end-consumers of gas. In the absence of any local market outlet for the gas, NAOC - the project participant - and its Joint Venture partners have created a market for the gas through the construction of an Independent gas-fired Power Plant at Okpai (480MW - Okpai IPP), consisting of a high efficiency combined cycle gas turbine electricity generating plant.

4.2.2. Implications on Sustainable Development

According to the final Project Design Document, a series of economic, environmental and social benefits are expected from implementing this project. With regard to economic benefits, emphasis is on expanding electricity generation capacity and improving electricity supply reliability at the national level.[146] With this project in place, an additional 480 MW electricity capacity is expected to be added to the national power grid, accounting for 12% of the total capacity available at the beginning of 2002.[147] Such improvements in the capacity would lead to stability of the grid by reducing voltage fluctuations and power outages.[148] In addition, such a project would contribute to real economic development in terms of innovation and technology transfer in the oil and gas industry, develop infrastructure, and trigger investments to kick-start flare reduction projects.[149]

In terms of social benefits, the Project Design Document suggests provision of employment, transfer of technical knowledge to the local population and contribution to

144*Ibid.*, p.3
145*Ibid.*, p.3
146Recovery of associated gas that would otherwise be flared at Kwale oil-gas processing plant, Nigeria, *Project Design Document*, 15 May 2006, p.3, https://cdm.unfccc.int/filestorage/T/2/N/T2N9G73GCSUW91EJUE7BJRW9NGIOLU/Final%20PDD-Nigeria%20_03_08_06.pdf?t=NUx8bnhoaWpnfDDj5vrnzBISl4SNlcHQSMCv.
147*Ibid*, p.3
148*Ibid*, p.3
149Agbonifo, P. E., "Reforming...," *op. cit.*, p.69.

rural poverty alleviation through provision of reliable power supplies.[150] Nevertheless, whereas the aforementioned macro-economic benefits are expected to be realised, the delivery of social benefits, which implies the creation of social wealth of the local communities where the project is carried out, is in question. For example, there are analyses that there are very limited benefits in terms of employment generation and technology transfer to the local population from similar CDM projects for the unemployed youths of host oil and gas producing communities in the Niger Delta.[151] This is attributed to the characteristics of the oil and gas industry, which is primarily driven by technology and highly capital-intensive, using highly skilled manpower, which is in disfavour of the unskilled manpower of the local communities.[152] With respect to the increased power supply to the local communities, more than 80% of the villages in the Niger Delta are still not connected to electricity line, despite the promise the Kwale project initially made.[153] The projected electricity generated from the CDM project benefits primarily the wealthier urban communities in main urban cities and not the rural communities where the CDM project is carried out.[154] In 2011, the traditional ruler of the Kwale community, Chief Emeka Uwaka, witnessed that six years after the CDM process began no community in Kwale has been connected to electricity. Neither Nigerian Agip Oil Company nor the government's electricity company, Power Holding Company of Nigeria, has yet connected electricity to these communities in spite of CDM promises.[155]

The project must definitely deliver positive environmental impacts, at least, as it is meant to reduce the GHG emissions as a registered CDM project. Besides reduction in GHG emissions, the environmental degradation on soil, water and air due to the gas flaring activity should also be lessened as the project would reduce toxic orange flares.

150Recovery of associated gas that would otherwise be flared at Kwale oil-gas processing plant, Nigeria, *Project Design Document*, op. cit, p.3.
151Obi, C. I., "Oil Extraction, Dispossession, Resistance, and Conflict in Nigeria's Oil-Rich Niger Delta," *Canadian Journal of Development Studies*, Vol. 30, No. 1-2, 2010, pp.219-233.
152*Ibid.*
153Agbonifo, P. E., "Reforming...," op. cit., p.73; Bond, P., Sharife, K., Castel-Branco, R.(Coord.), *The CDM Cannot Deliver the Money to Africa: Why the Carbon Trading Gamble Won't Save the Planet from Climate Change, and How African Civil Society Is Resisting*, Ejolt report No. 2, December 2012, pp. 60-61, http://www.ejolt.org/wordpress/wp-content/uploads/2013/01/121221_EJOLT_2_Low.pdf.
154*Ibid.*
155 Francis O., *Kwale Chief laments plight of communities*, Daily Independent (Lagos, Nigeria), August 16, 2011.

However, Environmental Rights Action, Nigeria's leading environmental advocacy group, and Friends of the Earth, analysed in 2011 that according to the monitoring report for three-year period between 2005 and 2009, submitted by the Nigerian Agip Oil Company to the UNFCCC, this only achieved a total reduction of 1,747,226 million tons of CO_2 equivalent during the period, not meeting the initially expected amount in the Project Design Document, which is 1,496,934 million tons of CO_2 equivalent per year.[156] The same report, prepared by the two organisations, also questioned whether companies such as Nigerian Agip Oil Company and Shell actually use associated or cheaper non-associated gas in their gas recovery and utilisation projects, referring to the similar but non-CDM gas recovery and utilisation project in Afam, Nigeria by Shell, and that Shell recorded a 30 percent increase in GHG emissions in 2010.[157]

Rewarding illegality

Many environmental justice activists criticise the Kwale project registered under CDM as rewarding of unethical corporate practice of gas flaring with CER credits. As gas flaring has been prohibited from 1984 according to the Nigerian law, it is corporate responsibility to eliminate gas flaring. The World Bank also views that registering the Kwale project under CDM was an opportunistic move by oil companies operating in the Niger Delta to receive carbon credits for reducing gas flaring, which oil companies should have stopped doing if they were to comply with the relevant laws.[158] Furthermore, the initial efforts made by the NAOC to establish a gas recovery and utilisation project in 1987 to comply with the Nigerian law on gas reinjection means that the problem of gas flaring could have been addressed by the company without the CDM mechanism, which raises the question of additionality.[159] In the same respect, Daphne Wyshame, from the Institute for Policy Studies in Washington, noted "*This proposal by Nigeria should be regarded as a fraud by the CDM methodology board... to tell companies they will be paid for doing something they should have done decades ago*

156Environmental Rights Action/Friends of the Earth, *Mired in a Fossil Trap*, the Nigerian CDM Report, May 2011, pp.6-7, http://eraction.org/publications/Mired%20in%20Fossil%20Trap.pdf.
157*Ibid.*
158Olawuyi, D. S., "Fostering Accountability in Large-Scale Environmental Projects: Lessons from CDM and REDD+ Projects," in Wouters, J., Ninio, A., Doherty, T.(eds.), *The World Bank Legal Review Volume 6 Improving Delivery in Development: The Role of Voice, Social Contract, and Accountability*, World Bank Publications, 2015, p.135.
159Oilwatch Africa and Environmental Rights Action/Friends of the Earth Nigeria, *Nigeria: Learning…, op. cit., p.3.*

by law is to encourage corporate abuse everywhere."[160]

By rewarding the unethical corporate failure in environmental protection, it creates perverse incentives for oil companies to continue emitting GHG into the atmosphere from gas flaring, which would ironically result in long-term negative impacts on environment, despite the project's short-term assertion on reducing GHG gases, and thus, deepening the climate crises.

4.2.3. Conclusion

Although the United Nations Environment Programme (UNEP) states that gas flaring in Nigeria has been reduced by 6% as at the end of 2012, from 24% to 18%, and partly attributes this to the several CDM projects including the Kwale project[161], it remains questionable and controversial weather it is appropriate to register such a project under CDM scheme. The very limited impacts on sustainable development, in terms of economic, social and environmental benefits, can be partly attributed to the lack of transparency in the process of approval and implementation. However, despite what could have been done in the process, the failure to increase social wealth witnessed not only in Kwale project but in other similar projects in Nigeria, such as Shell's Afam reinjection project, regardless of the registration under CDM scheme, shows that the projects of this type are almost innately appropriate to have positive social impacts. Along with the problem of rewarding illegality, this could have been addressed with more transparent stakeholder participation and a more transparent information disclosure system.[162] If the NAOC as well as the Designated National Authority were held more accountable by local communities and CDM Executive Board, the Kwale project would not have been registered as a CDM project in the first place, earning CER credits by doing what should have been done already without gaining any reward.

160 Bond, P. et al, *The CDM Cannot Deliver…, op. cit.,* p.59.
161 See the Nigeria page of Climate Clean Air Coalition at http://www.unep.org/ccac/Partners/CountryPartners/Nigeria/tabid/131838/Default.aspx.
162Olawuyi, D. S., "Fostering Accountability…,"*op. cit.,* p.136.

4.3. Discussions

The two CDM projects analysed above show that most of CDM projects would at least have positive economic benefits that any kind of large investment can offer. In terms of environmental impacts, CDM projects are meant to bring positive impacts on the environment as they should meet the requirement of reducing GHG emissions to be eligible under the CDM. However, like in the case of the Barro Blanco project, the local communities could suffer negative impacts on their surrounding environment. Although it does not seem easy for a CDM project to bring social benefits to the local communities, it would be hard to claim that a project contributes to sustainable development of the host communities if its social component is missing. In estimating social impacts of a project, public acceptance by the local communities should play a bigger role than what investors or project implementation bodies argue because the local communities would not say no to projects that would benefit them. The potential contribution to sustainable development must always be questioned when a project is faced with huge opposition of the local communities.

In this respect, the key to avoid approving a project under the CDM which is doubtful of its sustainable development effects would be to increase the accountability of the mechanism not only in the process of registration and approval but also once a project is approved. Local communities should be able to hold investors, project entities and designated national authorities more accountable. The CDM executive board should also take into more account others' opinions than designated national authorities because in many cases those authorities are biased towards the interest of national governments, which is not necessarily that of local communities. The case of Barro Blanco project indicates how little accountability the current CDM has, the result of which was to let the project approved under the CDM even if there was lack of local consultation, lack of transparent information and the environmental impact assessment was unreliable. The Barro Blanco project was suspended after all, but by the national government's decision, which means that if there was no government will there would not have been a way to suspend it under the current CDM architecture. This highlights the need for recourse in the CDM as a way to ensure accountability even after approval and therefore, to safeguards better interest of the local communities. In the same line,

said Eva Filzmoser, Director of Carbon Market Watch, that "*the CDM Board approved Barro Blanco when it was clear that the dam would flood the homes of numerous indigenous families. This decision is a warning signal that safeguards must be introduced to protect human rights, including robust stakeholder consultations and a grievance mechanism.*"[163]

163Yan, K., *Illegal Construction of CDM Project Barro Blanco Continues*, International Rivers, Published 6 January 2011, http://www.internationalrivers.org/blogs/246/illegal-construction-of-cdm-project-barro-blanco-continues.

5. Conclusion

From the perspective of distributional justice, the CDM under the Kyoto Protocol has two distinct implications. On one hand, it could undermine the distributional justice that the Kyoto Protocol intends to achieve by obliging only certain countries to commit to limit or reduce their GHG emissions. This is because it gives flexibility to Annex B Parties to pursue their quantified GHG emissions limitation or reduction targets in developing countries, where it is mostly cheaper to reduce emissions than in their own territories. As a result of Annex B countries exploiting existing low-cost ways to reduce emissions in developing countries, developing countries could be left only with more costly ways to reduce emissions when they are obliged to.[164] On the other hand, the CDM could make up the possibly undermined equity among countries by making Annex B Parties assist developing countries in achieving their sustainable development objectives. In this sense, whether or not the CDM contributes to sustainable development of project recipient countries is crucial in discussing whether or not the CDM serves climate justice.

However, the previous analyses of the CDM structure and the current profile of CDM projects in the section 3 as well as the case studies of Barro Blanco project and Kwale project imply that the current CDM may systematically lack the capacity to fulfil sustainable development objectives in developing countries. Firstly, not having a universal definition of sustainable development under the CDM and leaving the determination of contribution towards sustainable development at the national level have placed the realisation of sustainable development at the responsibility of host countries, for whom local communities' interests might not always come as priority. Accordingly, there is neither monitoring nor assessment system to ensure the realisation of sustainable development goals. Secondly, transparent local consultation lacked in both case studies, which, particularly in Barro Blanco project, led to very strong opposition of local communities and manifestations involving alleged human rights violations. Without adequate and transparent local consultation, it would be difficult to safeguard interests of local communities, which would generally coincide with realising

164Gordon, R., "Climate Change...," *op. cit.*, p.1610.

social component of sustainable development. Thirdly, the LDCs, those who actually need more assistance to move towards sustainable development, are sidelined under the current CDM. If a CDM project can be an opportunity for developing countries, it should be distributed justly and fairly to reach their sustainable development goals. Fourthly, specific types of projects that are more likely to undermine sustainable development should be more carefully examined, as the Kwale project has been criticised that giving CERs to such a project would rather reward illegality.

Despite controversies over the contribution of the CDM to sustainable development, a post-2020 climate regime would still need a similar project-based and carbon-offset mechanism as some countries might be already too low-carbon to realise their reduction targets solely by domestic efforts. The Paris Agreement also mentions a "mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development," which will be further discussed afterwards.[165] Learning lessons from the current CDM, such a mechanism would need to adopt specific and universal sustainable development requirements, have monitoring and assessment system to ensure a project's contribution towards sustainable development, require strengthened local consultation to safeguard interests of local communities and also balance distribution of projects among recipient countries.

165 Article 6 of the Paris Agreement, Annex to the *Adoption of the Paris Agreement*, UN Doc FCCC/CP/2015/L.9/Rev.1 (12 December 2015).

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