



Climate Change Equity: is it a plan, an aspiration or a fashion statement?

*A report of a Joint Inquiry by Bangladesh
Parliament's All Party Group on Climate Change
and Environment and the UK All Party
Parliamentary Climate Change Group*

Dhaka, London & Copenhagen - December 2009

Bangladesh:

Saber Hossain Chowdhury MP

HR Bhaban, 26/1 Kakrail
Dhaka 1000, Bangladesh

Constituency Office:
Shobujmoti Bhaban,
287/12-C Bishwa Road, Khilgaon,
Dhaka 1219, Bangladesh

Tel: (+8802) 831 5043 / (+880) 171152 3403)

Fax: (+8802) 831 1967

saberchowdhury@yahoo.com

United Kingdom:

Colin Challen MP
House of Commons
London SW1A 0AA
United Kingdom

Tel: (+0044) (0)207 219 8260

Fax: (+0044) (0)207 219 1982

colinchallenmp@parliament.uk

Publication contacts

Contents

5	Introduction and acknowledgements
7	Country Facts
9	Equity
17	Changing climate change: a human rights response
	Summary of Evidence
25	Practical Action
28	Chartered Institute of Water and Environmental Management
29	Dr Atiur Rahman
30	Professor Mizan Khan
31	Professor Peter F Smith
32	Lord Julian Hunt
33	Transparency International Bangladesh
34	Professor Nazrul Islam
35	Qazi Kholiquzzaman Ahmad,
36	Lord Dixon-Smith
37	James S Pender
40	Emergency Capacity Building Project
41	The Centre for Global Change and the Campaign for Sustainable Rural Livelihoods
43	New Age magazine
45	Oxfam Bangladesh and the Campaign for Sustainable Rural Livelihoods
46	RESULTS UK
48	European Action Group on Climate Change in Bangladesh
51	Membership of the Bangladesh All Party Parliamentary Climate Change and Environment Group
52	Membership of the UK All Party Parliamentary Climate Change Group

Bangladesh

Formation of All Party Parliamentary Group (APPG) on Climate Change and Environment was announced by Honourable Speaker of Bangladesh Parliament Advocate Abdul Hamid on June 21st 2009 with Saber Hossain Chowdhury MP, as its Chair. This cluster currently has 121 MPs who have signed on as Members and is the largest APG of the Bangladesh Parliament representing all the major political parties (list attached).

The APPG sees Climate Change and Environment as both a development challenge and a governance opportunity. Climate Change is unquestionably a very large part of the overall environmental challenge that confronts Bangladesh but the issue of degradation of the environment within the country, and costs and impact thereof, also needs focus and attention. The Group aims to:

- Facilitate and develop cross party consensus building, recognizing the importance of environment as a whole and climate change in particular and formulating policy initiatives / guidelines that will be followed even when there is a change in Government.
- Network with regional and international Forums and Groups on Climate Change and establish strategic alliances and common positions and standards.
- Inform and educate the people at large on issue of climate change and environment and build awareness thereof.
- Promote political leadership and stewardship of the climate change and environment agenda.
- Develop linkages between lawmakers, local government representatives, opinion builders, business communities and NGOs to promote an advanced level of understanding and cooperation between important stakeholders on coordinated responses and actions to adaptation and promotion of sustainable environmental governance.
- Advocate specific policy initiatives to mainstream climate change and environment.
- Encourage and promote use of renewable / alternative energy throughout Bangladesh

United Kingdom

The All Party Parliamentary Climate Change Group was founded in 2005. The objectives of the group are: "to deliver material and meaningful progress on climate change by creating an arena in which interested and relevant parties are able to discuss and formulate policy options and encourage the application of those that offer greatest promise. In particular the group expects to:

- Facilitate greater public action. While it is the role of Government to provide leadership on climate change it is the obligation of every member of society to take responsibility for tackling it. The Group will endeavour to bring the issue of climate change into the consciousness of the public fully, and to tie this awareness to an acceptance of individual responsibility.
- Promote greater communication. The Group will aim to improve communication between policymakers, commentators and opinion formers to ensure a greater level of understanding between stakeholders and to provide the Government with more political 'head-room' for movement.
- Encourage voluntary action. The Group will look to build Government recognition of the voluntary carbon market and to promote action beyond the regulated minima. Trailblazer individuals and organisations should receive greater support, to provide an example to others of the benefits of climate friendly practice.
- Support the development of a global standard. The Group will advocate the creation of a single global standard to denote responsible and effective carbon reduction and offset. This will simplify the recognition of those that are working to address climate change, and at the same time raise the profile of the issue.
- Formulate policy initiatives. The Group expects to provide practical action through the design and piloting of innovative policy alternatives such as the '25/5 Challenge', 'Contraction and Convergence', 'Domestic Tradable Quotas' and 'Carbon Neutral'. In this way the Group will have a direct and tangible impact on climate change policy in the UK."

Introduction and acknowledgements

We began this inquiry with the following statement:

“This inquiry, the first of its kind to be conducted by Parliamentarians in our two countries, is designed to flush out the ambiguities that surround the concept of equity in climate change negotiations.

We are frustrated by the lack of clarity which characterises the global approach to this issue, which we believe is brought about by concerns that both developed and developing countries have about how to share the burden of tackling climate change.

We believe that this lack of clarity and shared purpose is the greatest barrier to success in the UNFCCC negotiations.

We wish to demonstrate in our joint approach that parliamentarians from our two countries can help resolve the burden sharing riddle.

Bangladesh is a country which is most often quoted as being one of the first that will suffer badly from the impacts of climate change; the UK is a country which since the industrial revolution has contributed most to the problem – and which now professes political leadership on the subject.

We believe that if we as Parliamentarians from these two countries can bridge these differences, and develop a shared understanding of our respective burdens and challenges, we could propose a model for the developed and developing worlds.”

Our inquiry has been relatively short and was necessarily constrained by our limited resources, but we feel the outcome nevertheless reveals where there are some significant deficiencies in policy and where improvements can be made and new dimensions introduced in regard to equity, a human rights based approach to Climate Change and the imperative of acting on respective domestic fronts whilst at the same time engaging proactively in the putting together of a just, legally enforceable and binding international action..

Ours has been a learning experience, and we acknowledge the huge breadth and depth of experience, skills and knowledge delivered by the development and climate change agencies, official and voluntary that are working on the ground to address the issues we have considered.

However, we also now believe that the role of parliamentarians should be enhanced, not only to ensure greater policy innovation but also to act in a more engaged and specific oversight role through the formulation and adoption of a “Transparency and Integrity Code” for allocation and deployment of adaptation resources.

We welcome the way that the UK’s Climate Change Act provides for regular reporting to the UK Parliament, in the form of the Climate

Change Committee's statutory responsibility to make an annual report to Parliament. This is an approach that more could be made of in both the UK and Bangladesh.

On top of that, MPs from both countries should have greater contact within a Bangladesh/UK Climate Change Parliamentary Forum (CCPF). Such a Forum would have powers of oversight over the bilateral arrangements between our two countries, to build trust; to monitor the effectiveness of financial flows; to evaluate the delivery of policy and to provide a parliamentary focus for civil society engagement in Bangladesh and the UK. Such a Forum could operate in a similar manner to a UK Parliament select committee, with suitable constitutional safeguards.

It may be that the CCPF could operate under the aegis of the Commonwealth Parliamentary Association (CPA), or it might equally be set up in a similar fashion to the British-American Parliamentary Group. Indeed, the latter provides a good example of bilateral inter-parliamentary co-operation and we feel there should be more of such alliances, collaborative structures and networks world wide.

In whatever way the CCPF could be established, we strongly believe that it is necessary to ensure a non-partisan parliamentary voice is heard in future discussions about climate change.

In developing cross party consensual approaches to climate change, MPs have an important representative and mediating role, located between the executive and civil society and also in ensuring continuity in policies even when there is a change in government. Combining the knowledge of MPs from a developed and developing country could be crucial to enhancing public awareness of the problems we face.

This report may be brief, but we hope it is the first step on an important journey. It is a tentative movement towards closer co-operation between our parliamentary groups. We would like to thank the CPA for its continuing work on bringing Commonwealth parliamentarians together, helping to fertilise this initiative; we would like to thank those who in the short time available contributed evidence; and we thank Catherine Martin for her work collating the evidence and providing research background.

Saber Hossain Chowdhury MP
Chair
All Party Group on Climate Change
& Environment, Bangladesh Parliament

Colin Challen MP
Chair
UK All Party Parliamentary Climate Change Group



Country facts: Bangladesh



References: Country facts

Starred items taken from: International Energy Agency. [CO₂ Emissions from Fuel Combustion Highlights – 2009 Edition](#). Paris: OECD/IEA, 2009. Available online at <http://www.iea.org/co2highlights/co2highlights.pdf>. Accessed 18 November 2009.

All other statistics (not including “areas of greatest vulnerability to climate change”) taken from: U.S. Central Intelligence Agency. “The World Factbook.” Available online at: <https://www.cia.gov/library/publications/the-world-factbook/>. Accessed 18 November 2009.

Assessments of the ‘areas of greatest vulnerability to climate change’ are informed by: The Intergovernmental Panel on Climate Change. [Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change](#). Geneva: IPCC, 2007.

and also by the evidence submitted to this parliamentary inquiry

Population: approx. 156 million

Population Growth Rate: 1.29%

Life Expectancy at Birth: 60 years

Size: 143,998 km²

Gross Domestic Product: \$224 billion (purchasing power parity)

Per Capita Income: \$1500 (purchasing power parity)

Population Below Poverty Line: 45%

Main Economic Sectors: Service (53.3% of GDP, 26% of labour force); industry (28.6% of GDP, 11% of labour force); agriculture (19.1% of GDP, 63% of labour force)

Total (energy-related) CO₂ Emissions:* 40 million tonnes (2007)

Per Capita (energy-related) CO₂ Emissions:* 0.25 tonnes (2007)

Change in Emissions Since 1990:* Up 195% (as of 2007)

Since achieving independence in 1971, Bangladesh’s GDP has more than tripled in real terms, food production has increased threefold, population growth rate declined from around 3% in 1974 to 1.4% in 2006 and the country is now largely food secure. Bangladesh may well become a middle income country by 2021. Despite these successes, more than 50 million of its population still live in poverty and in ecologically fragile regions of the country, such as river islands and cyclone prone coastal belts that are particularly vulnerable to natural disasters.

Government of Bangladesh is committed to realising its MDG targets including halving poverty and hunger by 2015 through a strategy of pro-poor growth and climate resilient development. Bangladesh is one of the countries most vulnerable to Climate Change and this is already severely challenging its ability to achieve the high rates of growth needed to sustain these reductions in poverty. In the coming years, it is projected there will be increasingly frequent and severe floods, tropical cyclones, storm surges and droughts which will have a hugely disruptive impact on the economy.

A one metre rise in sea level will result in the displacement of almost 30 million people – “environmental refugees” – from southern coastal regions and have unimaginable adverse impacts on livelihood and long term health of a large proportion of the population. Melting glaciers in the Himalayas will result in more waters rushing into Bangladesh from the north causing flooding in the short term and eventually lead to scarcity of water in the long run.

More than half of the workforce in Bangladesh is employed in agriculture, and as a recent report showed, this is also an especially vulnerable sector: “On average during the period 1962-88 Bangladesh lost about half a million tons of rice annually as a result of floods, equivalent of nearly 30 percent of the country’s average annual food grain imports. Future climate change trends are set to worsen agricultural conditions; a study by the International Rice Research Institute showed that a 1 degree Celsius increase in night temperature during the growing season would reduce global rice yields by 10 percent.” (Linda Starke (ed) State of World 2009: Confronting Climate Change, Earthscan, 2009 p157) Changing weather patterns will affect agriculture, which accounts for about 20% of Bangladesh’s GDP and almost two-thirds of its jobs; this, combined with rising sea levels, is expected to result in Bangladesh losing 8% of its rice production and

32% of its wheat production by 2050.



Population: approx. 61 million

Population Growth Rate: 0.28%

Life Expectancy at Birth: 79 years

Size: 243,610 km²

Gross Domestic Product: \$2.226 trillion (purchasing power parity)

Per Capita Income: \$36,500 (purchasing power parity)

Population Below Poverty Line: 14%

Main Economic Sectors: Service (74.5% of GDP, 80.4% of labour force); industry (24.2% of GDP, 18.2% of labour force); agriculture (1.3% of GDP, 1.4% of labour force)

Total (energy-related) CO₂ Emissions:* 523 million tonnes (2007)

Per Capita (energy-related) CO₂ Emissions:* 8.6 tonnes (2007)

Change in Emissions Since 1990:* Down 5.4% (as of 2007)

Areas of greatest vulnerability to climate change: The UK faces danger from flooding and from extremes of temperature. Rising temperatures could increase the risk of vector-borne diseases, such as malaria. Changing weather patterns will affect agriculture.



Country facts: United Kingdom



Equity

The many allusions to an equitable solution to climate change such as those made at the G8 or other world summits are rarely explained in concrete terms. Yet as we have seen in the run-up to the Copenhagen COP15 talks, the hard negotiations have stumbled erratically over this very issue. Everyone – well, nearly everyone – agrees that tackling climate change is essential. But how to share the responsibility seems an elusive goal. Even earlier talk of ‘burden sharing’ now seems problematic, since it suggests that developing countries themselves might have to share some of the burden solving a problem which they had no responsibility creating in the first place.

This section attempts to clarify what sharing the task of tackling change may mean in the context of just two countries. In the UK and Bangladesh we have one of the world’s richest nations and one of the world’s poorest, and in the case of Bangladesh, one of the world’s most vulnerable to climate change. Few discussions about adaptation to climate change fail to mention how a one metre sea level rise could displace tens of millions of Bangladeshi people.

The negotiations leading up to Copenhagen have encountered their most intractable obstacle in seeking to quantify ‘the numbers.’ The numbers may be the level of greenhouse gas emission cuts that OECD countries are willing to make. But the numbers also refer inevitably to the costs of taking action. There is no easy route to addressing all the concerns that different regions or countries have. Very high expectations are made of the developed world, not only regarding their own GHG cuts, but also the level of finance they are expected to find to help developing countries avoid a carbon intensive course of development, and also to adapt to the inevitable climate change consequences of the industrial revolution which by-passed them.

A great many approaches are possible. Payments could be made on the basis of historic responsibility – a form of reparation; another form of finance could recognise the level of vulnerability some countries face; there is the bottom-up approach of simply adding up all the costs of doing things and then asking who is going to pay the bill; then there is the market approach, the preferred route of the European Union (EU), which prices carbon for the first time as a tradable commodity. No doubt the concept of burden sharing will end up reflecting all these and other approaches, as a deal will most likely be made on the basis of a trade-off between different negotiating blocs’ demands.

In advance of any deal, and probably after it is struck it will therefore be difficult to predict with any precision what the financial costs of tackling climate change will be. For example, the original Stern Review in 2006 suggested that 1% of GDP might have to be spent directly on mitigating climate change. Later, Lord Stern doubled this estimate in the light of scientific evidence that the level of GHG cuts should be greater if we are to have any chance of staying within the UK and EU target of containing any temperature increase to 2°C. A recent paper by Dieter Helm of Oxford University has suggested that the cost of tackling climate change in the UK alone would be £260 billion by 2020, roughly equivalent to Lord Stern’s figure. Gordon Brown has suggested a £100 billion global fund by 2020.

Many other sums have been mooted. For example, in a recent report called *The Climate Debt Crisis*, the World Development Movement suggested that the UK's share of 'climate adaptation debt' amounted to \$9 billion a year, or \$350 billion by 2050, and its 'emissions debt' was twice that, amounting to \$1 trillion in total by 2050. In contrast, the European Union's Commission put forward a paper in September, 2009 suggesting that the EU's contribution to international mitigation and adaptation aid funds might fall within a range between €2-15 billion per annum.

An EU finance ministers meeting in October failed to come to an agreement but in a Joint Presidency/Commission Paper released on the 20th October said "The EU Member States should respect their individual ODA commitments and the EU should reach its collective ODA commitment of 0.7% of GNI by 2015. The EU and its Member States should contribute their fair share of public financing for adaptation and mitigation and should contribute to fast-start financing for the first three years following an ambitious agreement in Copenhagen."

Three weeks later the Climate Vulnerable Forum put a figure on what they thought this additional money should amount to. In a communiqué dated 10th November, the V11 Group called upon developed countries "to provide public money amounting to at least 1.5% of their gross domestic product, in addition to innovative sources of finance, annually by 2015 to assist developing countries make their transition to a climate resilient low-carbon economy. This grant-based finance must be predictable, sustainable, transparent, new and additional - on top of developed country commitments to deliver 0.7% of the Gross National Income as Overseas Development Assistance."

Whilst there is clear agreement that climate change funds be additional to ODA, since most developed world countries have failed to meet their 0.7% targets after nearly 40 years, developing countries may be forgiven for their insistence on the separation of the two. A meeting of G20 finance ministers in November simply agreed "to take forward further work on climate change finance." On top of all these uncertainties one has to remember that the carbon markets are expected to play a big role, and unless steps are taken to remedy market volatilities they will not provide a guaranteed stream of income at predictable levels. The price of carbon allowances in the EU ETS has ranged between zero and €30+ per tonne.

All the above mentioned uncertainties suggest more work should be carried out to establish a metric by which we can benchmark and judge the value of words like 'fair' and 'equity' in the climate change context.

In the context of this inquiry, the methodology we have used to contrast the situation of our two countries follows that proposed by the Global Commons Institute (GCI), known as 'Contraction and Convergence' (C&C). This methodology was used by the Royal Commission on Environmental Pollution (RCEP) in 2000 when it produced its seminal report on climate change *Energy—Our Changing Climate*. This report substantially underpinned the 2008 UK Climate Change Act, and C&C has since been used to guide the thinking of the Climate Change Committee, established by the 2008 Act, in the

preparation of its statutory advice to the UK government. The UK government has not itself openly acknowledged the role of C&C in the development of UK climate change policymaking.

The essential principles of C&C are that by a certain point GHG emissions will be cut to a certain level, and that by a certain point those GHG emissions will be shared globally on an equal per capita basis. It is clear arithmetically that if the contraction point was set at zero, then we would de facto have per capita convergence – everybody would have zero emissions. However, if the contraction point is more than zero the question for negotiators becomes one of if not an equal share each, then who will have more or less – and why.

Using the C&C approach, which in this instance is based on a global GHG emissions cut of 90% by 2050, and with a per capita emissions convergence event in 2020, it is possible to compare the relative emissions levels of the UK and Bangladesh for each year out to 2050. Using figures produced by the UK government's Department of Energy and Climate Change (DECC) showing what a possible price of carbon might be in each year up to 2050, it is possible to work out what the total value of this new commodity might be in each country, each year. This exercise is only undertaken to illustrate the relative positions of the two countries, and since there are so many variables (not least the fact that DECC's assumptions will almost certainly be entirely different to GCI's) it cannot be relied upon for any other purpose.

Using the table (overleaf)

With a heavy emphasis on the caveat in the previous paragraph, the table can be used to calculate a figure for the value of assumed carbon emissions for any year, and to trace the possible price trend for each of our two country's emissions. Before attempting this however, there are some questions which have to be dealt with. In the case of Bangladesh, whose emissions start at a very low level (estimated emissions in 1994 were set at 4.6MtC, ex. LUCUF) we might want to ask what their 'deficit' would have been had they been able to emit at the same per capita level as an OECD country like the UK. It is this deficit figure which determines to what extent Bangladesh, along with other low emitting countries, has 'subsidised' the carbon-based growth of developed countries.

The annual carbon ‘allowance’ figures used in the table are based on the C&C methodology, which follows the logic of the UNFCCC, namely that developing countries should be allowed to follow a development path which for a time at least permits the greater use of fossil fuels. We can see how in the peak year of this process, Bangladesh’s total emissions could rise to 225 MtC, against the UK’s much reduced 72 million MtC. But Bangladesh, along with other members of the Climate Vulnerable Forum (V11) group of countries has declared that it wishes to achieve carbon neutral status.

Is Bangladesh likely therefore to reach the 225 MtC level by 2020, if ever? In fact, even if it wished to, it would probably find it very difficult to *carbonize* its economy at the rate required in the next ten years to achieve that. As we have seen, in 1994 its emissions were a mere 4.6MtC (ex. LULUCF). The vast majority of energy use in Bangladesh does not even count towards the national inventory of GHG emissions called for by the UNFCCC, because it comes from biomass which is classed as a renewable, carbon neutral source of energy. All that and more would have to be converted to non-carbon sequestered coal and oil to enable Bangladesh to come anywhere close to the emissions levels even C&C would permit. For this reason, Bangladesh has lost out in the current regime for supporting low or zero carbon development assistance through the ‘flexible’ UNFCCC mechanisms, particularly the Clean Development Mechanism (CDM). Any country which cannot support the infrastructure for carbon development (and hence carbon emissions avoidance) suffers the same double whammy. Ironically, if Bangladesh could attract major investment to carbonize its economy, it would probably attract major investment not to. In this sense, one could reasonably conclude that it has no choice but to look for non-traded low carbon investment finance, which as we have seen could be more than twice as expensive.

The next question must be: Is the UK paying its fair share towards the cost of helping Bangladesh develop low-carbon growth? A widely accepted principle, recently restated by Gordon Brown when he proposed a global figure of £100 billion for a low carbon development fund, is that such money and certainly no more than 10% of it should come from existing Overseas Development Aid (ODA) budgets, much of which is already used, e.g. to help developing countries meet the UN’s Millennium Development Goals (MDGs) on higher participation in education, improving the availability of clean water, sanitation and so on. So most of overseas low carbon aid (OLCA) must be extra – new money in the jargon.

Such a calculation, which of course would acknowledge the historic debt of the developed world, would also produce a politically and economically prohibitive figure. Reparations on such a scale could be counterproductive, or simply non-productive. Nevertheless if we set, say 2001 as our base year, and said that Bangladesh’s ‘use of carbon’ deficit was its population in that year x the OECD’s average per capita use of carbon, less the sixteen megatonnes actually used, we can begin to understand the sheer significance of what ought to be the value of this new commodity to people living in developing countries.

Let us now take 2009 as our year in which to attempt a calculation, for illustrative purposes only of course since there are so many uncertainties. Let’s say that Bangladesh’s population was 150 million, and that the average per capita use of carbon in the OECD was three tonnes. If Bangladesh were an OECD country, they would therefore be using 450 million tonnes of carbon. But, according to the table, their ‘allowance’ is 102 million tonnes, so their deficit is 342 million tonnes. The price of

Notes on the table

1. The figures in this column are for megatonnes of carbon only, excluding land use, land use change and forestry. To arrive at a figure for CO₂ multiply by 3.6.
2. The figures in this column are £ per tonne of CO₂. The traded price refers to - at present - the EU Emissions Trading Scheme (ETS), the non-traded price refers to sectors outside the carbon market, where it is assumed that in the early years the price of direct intervention (e.g. through subsidies and taxation) will be higher. As carbon caps become tighter and the availability of carbon allowances reduces, then the price of both traded and non-traded carbon equalizes. The values shown here are the central estimates only.
3. An important assumption behind the national carbon emissions columns is that they are based on a population baseline year, in this case 2000, in when the UK had a population of XXXX and Bangladesh had a population of XXXX. But any population baseline year can be chosen – it is a variable which naturally would produce different results for different choices but which crucially, with C&C would lead to an internally consistent recalculation.

carbon for 2009, at £21 per tCO₂ works out at £5.83 per tonne of carbon. Hence, in 2009 Bangladesh has a 'deficit' of £5.83 x 342 million = £1,993,860,000. That's nearly two billion pounds, on the central estimate of the traded price of carbon – it would be much more than twice that if we used the non-traded price of carbon. And this is just for one year! In contrast, the entire spend of the Global Environment Facility (GEF – which addresses more issues than climate change alone) since 1991 has been just £6.8 billion, and between 2006 – 2010 has been given £3.2 billion by its 32 donors.

It would be just as difficult to work out quite how much one OECD country's share of the overall OLCA budget ought to be as it is to work out a developing country's 'deficit' – with any accuracy. And some commentators would no doubt suggest that this exercise would, as with the latter be a purely theoretical task which is as likely to help understand reality as might counting angels on a pin-head. Yet we come back to the question of what IS fair? What IS equity? Surely we might suggest the possibility that such attractive concepts come with some ball-park figures attached? If not, do such noble assertions actually mean anything of substance?

An obvious calculation suggests itself, namely to divide current global carbon emissions by the global population, allocate each country its per capita share, price a country's carbon used above the global average and then allocate the value of that to a global fund which would be distributed to countries on the basis of their per capita carbon deficit. The obvious flaw with this approach would be the fact that the global average, being a mean average, would be brought down by the vast numbers of people living in developing nations and so would not reflect the profligacy of the far less numerous rich.

It might be better to attempt a valuation using a median average, centre-weighted to the number of people rather than their combined level of carbon emissions. The median average would be subject to a reducing cap each year. Thus if we assumed – and it is of course an assumption that could be tested against the reported carbon emissions of each country – that the majority of people globally had a per capita footprint of 0.5MtC, then those above that level would have to pay to those below it.

But it is immediately obvious that this approach also does not solve the problem of what is fair, since it may be argued that in the current context of a country's development status, a per capita carbon footprint of 0.5MtC is itself too low. The majority in the middle would be excluded from any benefit. Working out therefore what a rich country 'should' pay a poorer one to tackle climate change is fraught with difficulty. But it remains an important question, since rich countries faced with their own rising costs will have a difficult task convincing their own populations of the necessity of meeting large financial demands from developing countries if the slightest suggestion of unfairness creeps in.

We may be left with the other options, i.e. 'project' funding or a market-based approach, possibly combined with other factors such as a measurement of vulnerability. Let's look at these in turn, both generally and in the context of Bangladesh. Project funding can come in many guises, including through one of the UNFCCC 'flexible mechanisms'

such as the CDM, bilateral aid or charity work. We have not had the chance to carry out an exhaustive search of what Bangladesh has received from these sources, but the largest components – with a specific remit to tackle climate change – would appear to be:

CDM

Bangladesh has been awarded only four CDM projects – out of over 3,000 registered globally. This paucity of CDM projects makes Bangladesh possibly the least rewarded recipient developing country of any if measured by population size.

Bilateral aid

According to DfID, “Total aid to Bangladesh is around US\$1.2 billion per year. Major donors are the World Bank, the Asian Development Bank, Japan, and the UK which collectively provide more than 80% of all official development assistance. The UK is Bangladesh’s largest bilateral partner, currently providing approximately 20% of oda.” (July 2007) In 2008-2009, UK bilateral aid reached a total of £132.9 million, with the largest portions going to growth (31%), governance (26%) and education and health (30% combined). Aid-for-trade is therefore seen as the highest priority, and it appears that perhaps around half of the total aid Bangladesh gets is devoted to this end. The average annual amount received for this purpose from DAC countries between 2002 and 2005 according to the OECD was \$654,198,000, of which transport and storage, energy supply and generation and banking and financial services were the main beneficiaries.

Debt relief

Bangladesh’s external debt, according to a 31st December 2008 estimate totalled \$21.52 billion, up slightly on the previous year and at the second highest level since 2003, when it stood at \$16.5 billion. Debt servicing in 2004 came to \$675 million. In contrast to these mammoth figures, it appears that debt relief has been small scale. Bangladesh did not qualify for the HIPC initiative. Nevertheless, the UK wrote off \$1.3 million of development related debt in 2001, and other countries have sought to reduce debt where it was related to specific outcomes, such as a United States ‘debt-for-nature swap in 2000 forgiving \$10 million of debt, provided Bangladesh spent \$8.5 million on nature preservation. In a paper by Rezaul Karim Chowdhury and Md. Shamsuddoha, of Bangladesh’s Equity and Justice Working Group, “The IFIs [international financial institutions] attach stringent, unjustified conditions to their lending, which in reality create more poverty. For example, as a part of IFI conditions in recent years, Bangladesh has had to remove import tariffs, privatize national banks and industries even when they were making a profit, and increase user fees in essential public services such as education, water and electricity. Meanwhile the proportion of those living on less than \$1 a day has increased during this period from 29% to 41% of the population.”

Conclusions

Prime Minister of Bangladesh, Sheikh Hasina who also holds the portfolio of Minister, Ministry of Environment, recently said: “We need at least \$10 billion in the next four years to adapt to and mitigate the impact of climate change in our country. We’ll raise the issue in Copenhagen although the pledging of funds is not the main issue at the

climate summit. We are paying the price of carbon emissions of the rich and fast developing countries and they must compensate.” As we have seen, the question of compensation is clouded. If a court of law was calculating a level of compensation, then there would be fairly transparent and common rules to follow. In the case of climate change indebtedness there are no such rules, excepting for a conviction amongst developing countries that rich nations will decide what to pay on the basis of what they think they can afford, and perhaps not even that.

We recommend that work should be undertaken to establish a transparent basis for climate change finance for adaptation and mitigation which can then be used to benchmark what is actually delivered whether it be by official, market or other sources.

It follows from the previous paragraph that political leaders, notably those from the developed world, should refrain from using language which describes their intentions as ‘fair’ or ‘equitable’ unless they can at the same time substantiate what they mean by that.

We consider it appropriate that where finance for a developing country’s needs falls short of the benchmark, that additional funds should be provided. In the case of Bangladesh, this issue should be urgently addressed since it is clear that Bangladesh has fallen well short of the finance it needs from the international community to address its adaptation and mitigation needs.

The UK government has announced legislation to entrench its commitment to achieve the UN’s 1970 General Assembly’s commitment for developed country ODA to hit 0.7% of GDP. We call upon the UK government to propose that such legislation be adopted by the EU and by other OECD countries and that this approach be also adopted for climate change finance.

We recognize that there will be some crossover between ODA and OLCA, which the UK government has said should be limited to no more than 10% of ODA. We agree with this limit.

We call upon OCLA donors to recognize that countries like Bangladesh and indeed other V11 countries have special needs arising from their vulnerability to climate change.

Extra support should be provided as a matter of urgency to deal with these vulnerabilities, to include not only finance as appropriate and in the form of outright grants but also political, legal and diplomatic support, e.g. in matters of migration and territorial integrity and free access to technology.

Finally, as some of our evidence has noted, the role of women is crucial to the delivery of climate change action, both at the local and international levels. Bangladesh is one of the few countries in the world which currently has a woman leader, and is the only country in the Commonwealth to do so. Much of the mitigation effort in Bangladesh will be delivered by women. We want to see that women’s voices are heard at all levels of the climate change delivery chain.

Changing climate change: a human rights response

Discussion on Climate Change Equity inevitably merits consideration of entire spectrum of Human Rights but this dimension has only just begun to have some profile. The fact that Climate Change adversely affects and threatens fundamental human rights of current as well as future generations is an aspect that has not been discussed much.

UN Human Rights Council resolution 10/4 affirmed that “climate change-related impacts have a range of implications, both direct and indirect, for the effective enjoyment of human rights”.

We would also do well to recall the principle that in no case might a people be deprived of its own means of subsistence and the fact climate change-related effects negatively affects capacity of States to promote, protect and ensure the human rights of their populations as enshrined in their respective constitutions.

As climate change affects the most basic elements of life for people around the world and in the developing countries in particular, and global warming can and is already resulting in hundreds of millions of people suffering from floods, droughts, water shortages, extreme poverty, hunger, diseases triggered by extreme weather events as well as loss of livelihood and permanent displacement, climate change poses a clear and present danger to a wide range of universally recognized fundamental rights, such as

- **right to food**
- **right to clean drinking water**
- **right to health and sanitation**
- **right to adequate housing**
- **the right to live in a community of his / her choice**
- **the right to livelihood**
- **the right to development and last but most critically,**
- **the right to life itself.**

Hence, we must integrate, fully and unexceptionally, human rights aspects when addressing and responding to climate change challenges and such a rights based approach in confronting climate change make our responses people centered and orientated.

It will at same time also provide an equitable and much needed legal and moral umbrella for fashioning responses to mitigation, adaptation, funding and technology transfer. Human rights are often considered in a political context and applying to such areas as rights to a fair trial, following of due process or protection from torture.

Environmental problems have traditionally not been considered to trigger human rights violations, yet there is a growing interest in potential and real linkages between climate change and human rights issues. Whether nations who are responsible for human-induced climate change should be viewed as violating human rights and if affirmative, what is significance of classifying climate change inaction as a human rights problem, are questions that come to mind. The Maldives government has to its credit, successfully piloted a resolution on human rights and climate change at the UN Human Rights Council in 2008 and

other than this initiative and the legal suit filed by Inuit Indians, thus far no existing human rights regime has been applied to human-induced climate change. This is so despite emergence of a strong scientific consensus that human-induced climate changes is already harming and will continue to harm with greater intensity human life, health, food security, plants, animals, and ecosystems upon which humans depends.

Without doubt, climate change threatens not only human dignity but life itself especially to those most vulnerable and ill equipped to negotiate climate change impacts.

Scientific terms, technological debates and economic dimensions and implications have tended to monopolize climate change discussions instead. How these aspects connect and relate to the human rights agenda is an avenue which has not been explored much. As Mary Robinson, former UN Commissioner for HR succinctly put it:

“We must not lose sight of existing human rights principles in the tug and push of international climate change negotiations. A human rights lens reminds us there are reasons beyond economics and enlightened self interest for States to act on Climate Change.”

Perhaps, part of the mindset problem is in **coinage of the term “Climate Change” itself which attempts to describe a process rather than focusing on its implications and hugely adverse impacts.**

It is an astonishingly benign and neutral term to depict what is potentially and practically, the gravest catastrophe mankind has thus far faced. If we are to change “climate change” and inject a fresh and meaningful perspective into the discourse, a new coinage might help and this could be “Climate Chaos” or “Climate Calamity”.

Rather than highlighting the human tragedy dimensions of climate change and the impacts of changing climatic conditions on people’s ability to sustain themselves, their welfare, health and well being, concerns have instead been expressed on the damage being done to the planet in terms of climate extremes, desertification, air pollution, retreating glaciers, weather pattern changes and unpredictability, flooding and so on.

Whilst it is true all above changes are all very real and human induced, at end of the day, **it is human beings themselves who are the victims as their existence becomes untenable whereas the planet would continue to survive, albeit with a changed environment.**

Kofi Annan’s recent Global Humanitarian Forum report, has revealed statistics which are a stark reminder of how climate change is already wreaking havoc and devastating people’s lives in the developing world: *Floods, droughts, loss of livestock, disease, declining fish stocks and agricultural yields, have already seriously affected 325 million people; A further 500 million people are at extreme risk; 300,000 are already dying every year as a result of the effects of climate change*

The latest scientific findings indicate that climate change is happening faster than we had calculated and Professor Hansen has recently put forward the theory that Earth’s climate is in fact twice as sensitive to the warming effects of CO₂ as the IPCC predicted.

Most of the rise in sea level that we are currently seeing is due to thermal expansion as temperatures rise and once the melting of glaciers and ice sheets starts, this will make matters much worse. Since past and current emissions mean that we are locked into further warming, even if we start taking firm, decisive and effective action on mitigation right away, it will be a good few years before we start seeing the results of such action. Hence, the Annan report projects that within the next 20 years or so, even earlier perhaps, one in ten of world's population could be seriously affected by climate change.

It is thus the people themselves who are the real victims of the climate change they have induced. In the instance of Bangladesh, rise in sea levels represent a “south up” threat that could displace 30 million people in the event the rise is by one meter, not to speak of the salinity implications for food production and security to the nation as a whole.

There is also a distinct “north down” threat. The Himalayas are the water tower of South Asia, the source of water for almost 750 million of the poorest and most vulnerable people of the world. By 2035, the glaciers in the Himalayas could disappear entirely and whilst in the short to medium term this will mean more flooding for Bangladesh, in the long run there will be a severe shortage of water and this could well have a major regional and national security implication and lead to chaotic instability.

It is the poorest who are least able to cope or even prepare for predictable disasters but now with the threat, dangers and impacts magnified manifold due to climate change, those being hit first and the hardest are the most vulnerable groups – the poor, elderly, children, women, physically challenged, marginalized and the indigenous peoples.

The greatest tragedy, inequity and injustice is thus in the fact that 98% of those dying, seriously affected and being affected by the impacts of climate change, live in the poorest countries and yet these countries have contributed least to the problem. Climate change thus has to be addressed in a fair and equitable basis taking into account the needs and threats of the most vulnerable.

Various international protocols, conventions and covenants protecting and promoting human rights and imposing obligations thereof exist of course but these have sadly not featured or been heard in the negotiations thus far and these rights are in fact challenged and critically and substantially threatened by Climate Change.

To determine whether human-induced climate change does in fact trigger human rights violations under the current human rights regimes, we need to consider whether harms created by climate change interfere with rights expressly recognized by existing regimes.

The following rights are identified in the foundational international human rights regimes that are relevant to harms created by climate change. The Universal Declaration of Human Rights recognizes the following rights which are jeopardized by harms created by climate change:

- Life, liberty, and security of person. (Article 1)
- Right to an effective remedy by national tribunals for violations of fundamental rights. (Article 8)
- Full equality to a fair and public hearing by an independent and impartial tribunal, in the determination of rights and obligations. (Article 10)
- Freedom from arbitrary interference with privacy, family, home or correspondence. (Article 12)
- Freedom from being arbitrarily deprived of property. (Article 17)
- Right to a standard of living adequate for the health and well-being of one's self and one's family, including food, clothing, housing, and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control. (Article 25)

Rights to a social and international order in which the rights and freedoms can be fully recognized. (Article 28) (UN, 1948)

Right to food and right to adequate housing, for instance is upheld in Article 11, ICESCR, 1966 – “The States Parties to the present Covenant recognize the right of everyone to adequate food... to an adequate standard of living” and this Covenant also expressly contemplates requirement for cooperation between states to protect human rights.

Article 12 guarantees right to health – “the States Parties ... recognize the right of everyone to the enjoyment of highest attainable standard of physical and mental health.”

The UN Committee on Economic, Social and Cultural Rights, 2002 unequivocally asserts: “The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses.”

The right to life itself is enshrined in Article 6 of International Covenant on Civil and Political Rights (ICCPR), 1966 – “Every human being has the inherent right to life. This right shall be protected by law. Article 6 of Convention on Rights of the Child (CRC), 1989 reads “States Parties recognize that every child has the inherent right to life.”

In addition to the above international agreements on human rights, numerous regional human rights regimes exist that also expressly identify rights that are jeopardized by climate-change. And thus human-induced climate change can indeed be considered to interfere with human rights expressly recognized by most human rights regimes.

Above have significant implications. If the lack of adequate mitigation action to combat human induced climate change constitutes human rights violations and there is a direct, formal and legal relationship between human rights and climate change, this would:

- (a) Encourage nations to reduce their greenhouse gas emissions and at the same move swiftly on making available adaptation funding and free access to technology;
- (b) Make emitting nations defendants in tribunals created by

human rights regimes; and
(c) Transform international climate change negotiations by limiting the scope of debate on burden sharing;

The right to nationality is also threatened by Climate Change. Currently, migration is viewed as an adaptation response but when large numbers are being permanently displaced (as is already happening in Bangladesh wherein people are moving from rural areas to urban slums in Dhaka city), it is obvious that adaptation has in reality failed.

The present discourse on Climate Change is limited to four areas – mitigation, adaptation, financing and technology transfer. Unless we solve the problem of climate change much quicker and at an accelerated pace than we are creating it, migration (both internal and international displacement) **will have to be acknowledged and added as a fifth pillar and the possibility of managed migration, that would represent benefits for the West too, actively considered.**

This would then necessitate the recognition and creation of a new category of climate / environmental refugees and setting up of an international framework for their treatment.

When it comes to adaptation funding / finance, the human rights aspects must thus be factored in and taken into consideration.

The connection between human rights and climate change must be understood at all levels and only then would it be possible to promote and adopt a human rights and justice approach to climate change negotiations.

As accepted universally, human rights are indivisible and interdependent and related. Enhancement of one right facilitates the advancement of others and likewise, the deprivation of one right adversely undermines and circumvents the others. Accordingly, Governments all round the world must be made aware not just of their moral obligations but also their legal ones to protect preserve and promote basic human rights enshrined in the Universal Declaration of Human Rights as well as international human rights law.

Any sustainable and effective response to climate change will have to take into consideration its impact on human beings and their basic needs in a holistic manner.

We now speak of mainstreaming climate change in our development thinking and process and “climate proofing” being essential to sustainable development.

In a similar fashion, we need to make the commitment and have the political will to mainstream human rights and justice dimensions in the climate change negotiations and make it an integral part of various response strategies.

This is why it is so very **important to acknowledge climate affected people as active stakeholders and critical voices in the whole debate, discussions and negotiations.** Once this acknowledgement is in place, it will trigger the subsequent phases of these people being heard, having them participate and engage in discussions and decisions and finally, through an accountability framework holding to account decision makers

deciding for them and reducing their vulnerability to global warming. This will in turn facilitate the **strengthening of policy-making, drawing attention to the interactions between climate and human rights policies and promoting policy coherence and a more holistic, coordinated and effective global response to climate change.**

What could be more appropriate, just and equitable than to hear the voices at the ground level of the people who are suffering the most and will see their plights worsen even more in the future for reasons that they had absolutely nothing to do with?

It has to be though more, much more than merely having their voices heard. These people so affected must be fully engaged and effectively involved in the decisions that affect not just their lives, but also that of their future generations. Policy makers too are thus challenged to think not in terms of tomorrow, the week after or the year ahead but in terms of, in the words of Gordon Brown, “eras and epochs” and how our environmental stewardship “will be judged not by tomorrow’s newspapers but by tomorrow’s children”.

After engagement, the issue of accountability comes to the fore and here the principle should be clear and unequivocal – policy and decision makers should be accountable to those who in fact feel and experience the full impact of such policies and decisions and this accountability should in all fairness apply to what the policy makers have actually achieved in their own respective tenures.

If the above steps can be achieved and principles thereto established, people and their lives will occupy the center stage of the debate on climate change and the discourse will no longer be one that puts people on the periphery rather than the center. As the world tries to come together and find common ground that would lead to an inclusive and equitable new global deal in Copenhagen, it is more apparent than ever before that we need to agree on a common legal and moral basis for such an agreement that will be enforceable and legally binding, with strong compliance provisions.

The UNFCCC can and should be used as an effective tool and vehicle for protecting human rights jeopardized by climate change impacts. Principle of “common and differentiated responsibilities” between states obligates Annex 1 countries to assist most vulnerable and put in place protection / buffer mechanisms for human rights.

Unity of thought must precede unity of action and a human rights based approach to climate change could well represent the basis for such a meeting of the minds.

However, in the absence of a shared, agreed and accepted legal and moral basis between countries in responding to Climate Change, it is perhaps no surprise that an agreement, despite all the efforts and growing voices round the world, still appears elusive.

In IPCC’s second assessment report in 1995, the scientists concluded that the ‘balance of evidence’ supported a link between human action and global warming. This was in fact the slender evidence basis on which Kyoto Protocol was negotiated and signed. Since then, the IPCC have come up with two reports - in 2001 and 2007. In the third

assessment report of 2001, the scientists were more confident saying it was 'likely' that there was a link and they attached a probability assessment of 60-90% to this statement.

The fourth and most current IPCC assessment report of 2007 increased this probability of a link between human action and climate action to 'very likely', i.e. greater than 90%. The world was able to come together and conclude two milestone agreements in the form of United Nations Framework Convention on Climate Change (UNFCCC) in 1992 and the Kyoto Protocol in 1997 which implements the Framework Convention.

Interestingly, both the above agreements were achieved when the scientific evidence was neither as compelling nor as conclusive as it is today and neither was there much by way of global concern and action.

Although 40 developed countries came together and agreed to bind themselves to emission targets under Kyoto Protocol in 1997, that consensus evaporated almost instantly thereafter as the US Senate signaled its preemptive rejection of the Protocol.

Australia followed America's lead in renegeing by become the second country to sign the Protocol and then refusing to ratify it. Other Annex 1 countries ratified the Protocol, but, discouraged by the US u-turn, made a less than convincing effort to achieve their targets. Having failed the first time, the world is now trying to succeed but attempting to move ahead on the basis of a spectacular failure, is always going to a steep challenge.

It is also a matter of concern that most of the countries are waiting for an international framework and agreement to be in place first before they are willing to commit to appropriate action at their domestic climate change policy front. Why does it need a Copenhagen summit for the Annex 1 countries to act on climate change and what stops them from moving ahead unilaterally in their domestic arenas?

Sure, an international agreement will help in promoting more mitigation and emission reduction actions but if there was solid bedrock of action at the respective domestic levels to build on, then the more effective subsequent international actions would be. In retrospect, this was a major failing of Kyoto and it appears 12 years down the road, the lesson has not been learnt with the exception of the UK and its climate legislation.

Trust and credibility are both commodities that are in short supply when it comes to climate change negotiations and the divide between Annex 1 and developing countries is fundamental to understanding the current international climate change dynamics.

This is further reason to bring to the table a new and fresh human rights based approach to climate change that will bring together nations across the climate divide, with an over arching moral and legal rationale and compulsion. We desperately need a coalition of the willing to change where its members, especially those from Annex 1 are driven by respect for promotion and upholding of human rights, are willing to act unilaterally in their domestic fronts and at same time actively promote an inclusive, legally binding and

enforceable, equitable global agreement.

If we are able to come together as this coalition and more importantly, do so before reaching tipping point and climate change becomes irreversible, we have a chance. Failure to do so will mean the boat will sink and we all with it. The fight must go on though and history gives us reasons to be hopeful.

Just as we, in the past, discarded the business as usual syndrome and changed the status quo by adopting a no compromise, zero tolerance attitude towards slavery and Nazism and are currently doing so with regard to terrorism, so we will have to do with climate change

Changing mindsets and approaches will be the first step towards changing climate change. Politics may be about compromises but a moral approach demands zero tolerance and non negotiability. Politicians may wish to wait but climate change is in no such mood.

It is already a threat which is far greater and more fundamental than that posed by terrorism. It is the foremost security, sustainability and survival threat the whole world faces and this calls for the political leadership to be ahead of the game rather than behind it.

Summary of evidence

We have summarised evidence here for reasons of economy, but felt it important to incorporate into our report all the submissions. We take responsibility should any errors have occurred in the editing process.

Practical Action

‘Poverty, Justice, and Climate Change’

Key points:

Vulnerable communities are already suffering the effects of climate change, and are adapting using local systems and traditions, because there is no wider institutional or financial framework to support them. Community-based vulnerability assessments can help determine not only the likely impact of future climate change on a community, but also the value and the limits of traditional coping mechanisms. These assessments should focus on the most vulnerable people within each community, and should include strong gender analysis. However, the assessment process should not be so complex that it holds up funding.

Climate change adaptation should be part of community-based development, and should focus on strengthening institutions and economic resources, as well as making information, skills training, and technology readily available. Adaptation requires two approaches: systems-based risk management (using the principles of disaster risk reduction in the Hyogo Protocol) to protect the assets communities currently have, and the development of more diverse, less climate-sensitive, sustainable livelihoods. The main role of governments and international institutions is to support local adaptation initiatives with appropriate policy frameworks. Communities should have the power to shape adaptation policies using their own priorities, experiences, and traditional knowledge, and communities and practitioners should share lessons from successful adaptation projects.

Developed countries, as those most responsible for climate change, should finance adaptation. The World Bank estimates that ‘climate-proofing’ development will cost between \$10 billion and \$40 billion a year, but this represents only a fraction of the funding needed. Current adaptation funding, from voluntary government donations and a 2% levy on financing for Clean Development Mechanism carbon offset projects, is completely inadequate. New sources of funding, additional to current development funding, are necessary, and the Adaptation Fund must be operationalised as soon as possible, with a management structure that will allow developing countries to determine how funding is allocated.

The post-2012 framework must include a global cap on GHG emissions, consistent with current science; explicit equity principles; and a clear threshold separating countries with emissions reductions obligations from those without.

‘Governance for Community-Based Adaptation’

Key points:

Adaptation governance must:

- prioritise the needs of, and ensure that resources reach, the most vulnerable people (including marginalised groups, women and children, indigenous peoples, local communities and those disproportionately impacted) and ecosystems
- base adaptation on assessments of the risks, needs and circumstances of local people and communities
 - give local communities control over adaptation planning and

practice, including the distribution of funds

- operate in a transparent and well-documented way that is open to public scrutiny, and ensure that key stakeholders (especially those from vulnerable or marginalised groups) are represented, and take a learning-by-doing approach to create flexible programmes that can be modified as necessary, because the need for adaptation is urgent.

Adaptation governance requires a national coordinating body. Stakeholder fora are Practical Action's recommended form of governance. These bodies provide inclusive national platforms for civil society (especially representatives of marginalised groups), possibly together with government representatives, academics, private companies, and/or the media, to shape and monitor adaptation policies. It is important that the selection and work of stakeholders be transparent, and that stakeholders respond to the views of their constituents. Governments must be sure to reach out to organisations from all sectors of society, and to those holding a wide spectrum of political views.

Community-based adaptation planning ensures that national adaptation policies are rooted in local environmental and economic needs. National and international NGOs can work directly with local people, or can help strengthen or register local community-based organisations, to establish the community's priorities and needs; local government, with input from community members, can perform the same function. Regional government institutions are essential in linking communities into resources that are channeled through national governments, but these regional institutions must be properly funded and monitored. Both community-based adaptation programmes and stakeholder fora require capacity building, so that local communities have resources and access to expertise, local governments are better able to evaluate needs and implement policies, and forum members unused to working within a formal institution can fully participate.

A system of regional hubs, under UNFCCC control but drawing on the experience of existing institutions, could help to build capacity and provide technical expertise and climate science for community groups and local government. Stakeholder fora require well-resourced, independent secretariats, under the control of steering committees of forum members, to allow all members to fully participate in the forum. Finally, the distribution of resources must be transparent, and must be monitored by the communities at risk, either formally (through a process like the UNDP's Community-Based Adaptation Programme) or informally through civil society.

'Climate Change and the Challenge of Energy Poverty'

Key points:

The developed world has a responsibility to cut carbon emissions, for which they have historically been mostly responsible. It is also crucial to ensure equal access to energy for vulnerable people in the developing world. Substantial funding from governments and international aid is necessary to address fuel poverty, as 2 billion people worldwide are without electricity, which is vital to productive activities and the provision of basic services (including transport, which is already climate sensitive; health care; education; communications; and water purification). 2.5 billion people use biomass for heating and cooking,

which creates long-term respiratory problems, especially in women and children. According to the World Bank, consumption of electricity is 25 times higher in the richest countries than in South Asian countries.

The IPCC expects world energy demand to double or treble by 2050, meaning that carbon emissions will increase by a factor between 1.6 and 3.5. However, there is evidence that the energy needs of the rural poor can be met by increasing the world's energy supply by only 7% (according to the World Energy Council) and that most of this can be drawn from local, clean energy resources. This would have a very small impact on the climate, and would require only a moderate investment. The IEA estimates that 8 billion USD over the next thirty years would meet the energy demands of developing countries – a small fraction of the estimated 16 trillion USD needed worldwide to meet energy demand by 2030. This level of funding will still require new policies and sources of aid. Developed countries must also make drastic emissions cuts, as energy demand in the world's poorest countries will rise as poverty levels drop, and it would be unjustifiable to deny the poor access to energy as a way of keeping emissions down.

Energy development strategies for poor communities must:

- Promote social inclusion (taking account of gender and cultural issues).
- Use intelligent subsidies to make access to clean energy affordable for the poor.
- Involve a broad range of stakeholders in making decisions.
- Promote small, decentralised renewable energy sources, both as a way to provide access to energy for the rural poor, and as a contribution towards sustainable development.
- Build national and local capacities to design, construct, and operate energy generation and distribution systems.
- Include financial mechanisms to facilitate private investment and decentralised energy sources.
- Include provisions for forestation, reforestation, and management of wood reserves, including farming wood for fuel.
- Provide access to alternative energy services for cooking and heating, which will reduce emissions and exposure to dangerous air pollution.

The CDM, the Adaptation Fund, and other financial mechanisms should adopt more flexible rules to give the poor better access to these funds. Above all, governments in developing and developed countries must prioritise energy access for the poor as a common good.

The Chartered Institution of Water and Environmental Management

Key points:

Climate change equity is complicated by the fact that most developed countries have vested interests in the current economic and environmental system. However, climate change equity must be part of a global framework of commitments to social, economic, and political change, and to social justice. Developed countries must create and manage wealth ethically, and must help developing countries alleviate poverty. The concept of climate change equity should include the full range of human rights (including the right to education, a home, basic

services such as water and sanitation, healthcare, and a voice in policymaking), and must also cover establishing sustainable lifestyles and protecting the rights of future generations. The Pew Centre report 'Equity and Global Climate Change' laid out three criteria for determining each country's responsibilities for mitigating climate change: historical emissions, the ability to pay for mitigation measures, and opportunities to reduce emissions. However, considering that developed nations did not cause climate change deliberately, and that they have made efforts to reduce their emissions since the effects of greenhouse gases became clear, countries with the ability to pay for mitigation should focus on supporting developing countries, not on debating responsibility or paying compensation for climate change. Contraction and Convergence is the only potentially equitable approach to mitigating climate change, and is based on sound science.

Adaptation will be necessary even with stringent mitigation measures in place, and should focus both on reducing communities' vulnerability to climate change and on dealing with displaced people. (There is, however, some tension between mitigation efforts, which are global, and adaptation, which must be local and targeted.) Climate change will affect the UK in several ways: agriculture may benefit from longer growing and grazing seasons and temperatures that make new crops viable, but will suffer from soil erosion, drier weather, and new pests; the UK will need new sources of, and methods of distributing, energy; climate change will diminish the quantity and quality of water supplies while increasing the demand for water; and heat deaths, respiratory illnesses, and tropical diseases such as malaria will become more common. The UK and Bangladesh both face serious danger from flooding, but the threat to Bangladesh is far more severe. Bangladesh must cope with both temporary flooding (from weather events) and permanent flooding (caused by sea level rise) in many areas, which will displace millions (up to 40 million people could be displaced by a one-metre rise in sea levels). While countries like the Netherlands have invested huge amounts of money in technological protections against flooding, the UK and other countries have chosen to retreat from flooded areas rather than to protect them, and developed countries are unlikely to pay for flood defences for Bangladesh that they have deemed too expensive for themselves. It will therefore be necessary to relocate millions of Bangladeshis to a nearby country; however, this country must be able to provide sustainable livelihoods, and India, the most likely candidate, is already facing population problems.

Adaptation will require new financial mechanisms to distribute and monitor aid. In particular, the UK and other developed countries should help Bangladesh build its capacity to implement and monitor adaptation programmes by providing education programmes (including training for Bangladeshi professionals) and by ensuring that the Bangladeshi government has the latest data collection technology and techniques. Adaptation should prioritise the poorest Bangladeshis, especially those without social services, and should include technology transfer and aid to help Bangladesh carry out reforestation to slow flooding.

Limiting population growth is key to addressing climate change and a variety of other global problems. The development and environmental communities should work with family planning and health experts to provide greater access to family planning in developing countries (a newly established Millennium Development Goal). Reducing poverty and empowering women effectively bring down birth rates.

Dr. Atiur Rahman, Governor, Bangladesh Bank

Key points:

Climate change equity is crucial to ensuring that any deal reached at the Copenhagen COP is fair and morally valid. While the UNFCCC and the Kyoto Protocol do not mention equity specifically, the Marrakesh Declaration and Accords (agreed at COP-7 in 2001) discuss developed countries supporting mitigation measures in developing countries. Developed countries should bear most of the responsibility for both mitigating and adapting to climate change and its effects, as these countries have historically emitted, and continue to emit, far higher levels of greenhouse gases than countries in the developing world. Some developed countries will also benefit from climate change directly. The thawing of Arctic ice in Canada, Greenland, Nordic Europe, and Siberia will create more habitable and arable land in these areas, while in Bangladesh, a one-metre rise in sea level would displace 30 million people. Bangladesh risks losing much of its arable land to flooding and salinisation, and much of its crop yield to increased temperatures. The newly thawed Arctic areas could house millions of climate change refugees.

The global North also has substantial opportunity to lower greenhouse gas emissions through environmentally sustainable production and decreased consumption and waste, without sacrificing human wellbeing. On the other hand, countries in the global South must increase their emissions in order to develop and to alleviate poverty, although current and emerging green technology means that countries in the South should still emit less carbon than countries in the North did at a similar point in their own development. Developing countries must not be asked to limit their emissions to a level lower than the current global average, or lower than the target level for developed countries. In terms of mitigation, the UN (or another suitable global agency) should provide developing countries with no-cost access to the latest mitigation technologies and techniques, in order to support these countries' voluntary efforts to lower their emissions. In terms of adaptation, developed countries should contribute a set amount (some developing countries have suggested 1% of GDP) to a global adaptation fund to meet the substantial costs of adaptation in the global South. Developed countries could pay part of this contribution by agreeing to house climate refugees. A tax on cross-border travel and freight could supplement the adaptation fund, and this would share the cost of adaptation among both developed and developing nations.

Professor Mizan Khan, Department of Environmental Science and Management, North South University, Dhaka

‘Climate Change, Equity, and Bangladesh’

Key points:

While true climate equity should mean that every person and country has a equal right to emit greenhouse gases in order to fuel development, developed countries have already over-used this right. However, developing countries' emissions are now rising to meet the levels of developed countries, and there are huge differences in per capita emissions between citizens within a country, as well as between countries. Equity, a guiding principle of the Climate Convention, has

been sidelined in favour of efficiency and cost. But just as developing countries realised in the mid-1960s that wealth created at the national level did not trickle down to the poorest in society, and that the benefits of development had to be deliberately distributed equitably, so experts are now realising that climate change equity requires a conscious policy.

The Clean Development Mechanism (CDM) is ill-suited to create equity and sustainable development, as CDM projects are established in areas with better infrastructure and opportunities, because it is cheaper to produce carbon credits with these resources in place. China, India, Brazil, and the Republic of Korea collectively contain 80% of the world's CDM projects; Bangladesh has only one project. Developed countries' contributions to climate change adaptation funds have also been inadequate (amounting to only 70 – 80 million USD for developing countries over the past decade) and uncertain. The poor in the developing world are the most vulnerable, as they bear the brunt of both climate change and globalisation, and are the least able to adapt.

The Bangladeshi delegation at the Copenhagen COP should promote the following measures:

- A responsibility-based (not charity-based) mechanism for funding overseas development aid, based on the Polluter Pays Principle, as already applied by the OECD. This should take account of historical as well as current greenhouse gas emissions.
- A Global Vulnerability Index, developed by a group of internationally-accepted experts, to determine how adaptation should be distributed among countries and individuals. The Global Environment Facility (GEF) gave each developing country equal funding to develop a National Adaptation Programme of Action, regardless of each country's population or needs. This highlights the importance of a mechanism to prioritise adaptation funding. GEF is willing to develop a vulnerability index (several NGOs, such as Germanwatch, already have such indices).
- A livelihood approach, rather than a sectoral approach, to determining vulnerability.
- Mechanisms to generate funds for mitigation and adaptation for developing countries automatically (like the CDM levy). These could include levies on aviation, global currency transactions, bunker fuel, or other activities.
- A focus on the immediate impacts of climate change, to ensure support for the world's most vulnerable people to adapt to climate change now, and thereby also build their capacity to adapt to the long-term consequences of climate change.
- Provisions to include the local and culture-specific knowledge of the most vulnerable communities as a crucial resource in adaptation planning.
- The removal of quotas on exports from developing to developed countries, in order to bolster vulnerable economies.
- Index-based Crop Insurance and Microinsurance to insure the livelihoods of poor farmers.
- Provisions to relocate people displaced by climate change from the most vulnerable island and coastal countries.

Procedural justice, allowing the most vulnerable poor a voice in adaptation planning and design. This will ensure that adaptation measures reflect their concerns and needs.

**Professor Peter F. Smith, School of the Built Environment,
University of Nottingham**

‘Strategy for Bangladesh’

Key points:

Bangladesh is set to bear the brunt of the impact of sea level rise. The IPCC’s prediction that the sea level will rise by a maximum of 0.59 metres by 2100 is “dangerously conservative”, according to Professor James Hansen, director of the NASA Goddard Space Institute: the estimate is based on ice sheets and glaciers melting because of solar radiation only, while in reality meltwater helps accelerate the further breakup of ice sheets. Most of the observed rise in sea levels now is owing to thermal expansion as temperatures rise; this rise will soon be overtaken by the sea level rise from the melting of ice sheets and glaciers. Ice loss in the Greenland ice sheet has tripled since 2004, and the entire ice sheet will probably melt if exposed to a local temperature rise of 3°C or higher (the Arctic is warming at a rate three times the global average). The situation in the Antarctic is similarly bad. The Wilkins ice shelf, one of a system of ice shelves that act as buttresses to support and contain the land-based ice, is on the verge of collapse; it will be the seventh major ice shelf in the region to disintegrate. Professor Hansen has recently put forward the theory that Earth’s climate is twice as sensitive to the warming effects of CO₂ as the IPCC predicted. If true, this would mean that the atmosphere already contains enough greenhouse gases to cause 2°C of warming, leading to dangerous climate impacts. John Holdren, president of the American Association for the Advancement of Science, has stated that at the current rate of sea level change, a rise of four metres by 2100 is possible, which could mean a rise of one metre by the middle of this century. This rise, amplified by storm surges, would mean that Bangladesh would no longer be a viable state. The international community must act to help relocate a large percentage of the Bangladeshi population to another country before such a catastrophic sea level rise occurs. Developed countries should immediately set up a contingency fund for Bangladesh.

Lord Julian Hunt

‘Comment: Why China Needs Help Cutting Its Emissions’

Key points:

The Chinese government has not taken on board the goal of keeping climate change below 2°C, or of limiting the atmospheric concentration of CO₂ to 450 ppm; in fact, China has not adopted any specific target for limiting either carbon emissions or climate change. Instead, the government is focused on stability through economic growth. China estimates that its GDP will increase sixfold over the next 40 years, driven by the consumption of fossil fuels; Chinese emissions are expected to double by 2050. The Chinese government’s only significant climate change target is to improve the efficiency of China’s coal-fired electricity generation, while also increasing its output. The latest annual report of the Beijing Climate Centre explores two future scenarios, both

involving higher atmospheric concentrations of CO₂ than the UNFCCC goal of 450 ppm: one scenario posits 550 ppm of CO₂ in the atmosphere, while the other would involve 750 ppm of CO₂ and an average temperature rise of over 4°C across China. In addition to increasing the efficiency of its coal-fired power stations, China should adopt carbon capture and storage and expand its use of nuclear power in order to lower emissions. Western nations can help by providing substantial technical assistance towards these ends. More importantly, Western countries must commit to drastically cutting their emissions (by at least 80%) by 2050, on the condition that China makes the same cuts after 2050, giving its energy efficiency, renewable energy, and nuclear programmes time to take effect. China's long-term financial interest in working with the US, and its excellent track record of delivering extensive technological programmes and keeping its international commitments, both mean that an effective deal at the Copenhagen COP remains a real possibility.

'Regional Climate Initiatives for Post-Kyoto Policies'

Key points:

Substantial changes to the climate are now inevitable, and it is unlikely that global action will stop accelerating climate change. China's emissions are likely to at least double over the next fifty years, even with the maximum possible introduction of low-carbon technologies – a fact that will have an undetermined effect on other high-emitting countries' climate policies. Meanwhile, extreme climate and weather variations – some more dramatic than anything seen since the end of the last ice age – are already irrevocably destroying ecosystems and damaging emerging economies, threatening sustainable development.

Adaptation is crucial, and should be conducted regionally, based on the existing knowledge and infrastructure in each region. The effects of climate change vary widely by region within a state or country (as in California and West Africa, where climate trends on the coasts are radically different from those inland). Regional action can also have an impact on global climate change: for example, there are regional programmes planting trees in parts of India and the Sahel.

Collaborative networks among regions, linking cities, local governments, and private companies, will allow regional experts and policymakers to benefit from local, national, and international knowledge and programmes. Joint studies between the UK, Uganda, and Ghana have shown that NGOs could facilitate these networks at low cost. The networks should also take account of observations from farmers and villagers in areas affected by climate change, as these provide a unique, long-term perspective on climate variations. Cooperation between regions already provides substantial benefits: for example, experts from regional centres in India, China, and Nepal met in May 2009 to study California's regional responses to local climate impacts.

The IPCC's computer models provide broad guidance on regional temperature changes, but their predictions about the resulting climate and weather trends are not accurate enough for regional planning (especially for water management and agriculture). More detailed projections, with statistics on long-term cycles and close attention to local climate effects, are necessary. Restrictions on the international

exchange of observation data also pose a problem. Regional information centres can help overcome these restrictions and share information about climate change and natural hazards. For example, regional centres in Brazil and China provide data and inform policy on emissions, deforestation, agriculture, and energy, while unofficial centres in the US help relay government climate data to communities and businesses.

Transparency International Bangladesh

‘Integrity in Climate Change Adaptation and Mitigation’

Key points:

Bangladesh’s natural vulnerability to climate change and severe weather is exacerbated by the governance gap, weaknesses in the national integrity system, poor democratic accountability, and widespread corruption. The World Bank has estimated that if Bangladesh could reduce corruption levels to those of the world’s least corrupt countries, this would add 2.1 – 2.9% to the Bangladeshi GDP (much of it in the form of increased foreign investment). Corruption particularly harms the poor (who also face the greatest risk from climate change), as they are most vulnerable to bribery, extortion, and intimidation, and can least afford the increased prices for basic services caused by a system where bribery is endemic.

The government of Bangladesh will adopt a comprehensive Code of Integrity, Transparency, and Accountability (CITA) to cover all actors and stakeholders involved in Bangladesh’s \$5 billion climate change action plan (which addresses six areas: food security, social safety, and health; disaster management; infrastructure; research; low-carbon development; and capacity building). The CITA adopts a zero-tolerance policy towards corruption, blacklisting companies shown to be corrupt. It also requires strict anti-corruption policies in any companies or NGOs working on adaptation projects, and opens major contracts to competitive bidding. In addition, the CITA applies stringent controls to government departments dealing with adaptation programmes by distributing different functions (such as demand assessment, project selection, contracting, and project supervision) to different bodies, referring major decisions to committees, and requiring staff in charge of procurement to be well-trained, adequately paid, and rotated regularly. Finally, the CITA establishes comprehensive monitoring of adaptation programmes by making sure that internal and external control and auditing bodies are independent and effective; requiring the public disclosure of all information that isn’t legally protected relating to climate change mitigation and adaptation programmes; and promoting the participation of civil society groups as advisors and monitors at every stage. The government will create the position of Ombudsman to oversee compliance with the CITA and to investigate complaints, and there will be several mechanisms for public feedback.

Integrity Pledges – commitments to refrain from and report bribery and corruption, signed by government departments working on climate change adaptation and mitigation and by any companies, authorities, or NGOs they work with – will help reassure companies, NGOs, and other suppliers that their competitors will not be able to get ahead through bribery, and will help the Bangladeshi government lower the cost of adapting to climate change by ensuring that the process is free of

corruption. Independent and disinterested organisations or committees of individuals will monitor the Integrity Pledges.

Professor Nazrul Islam, Chair of the University Grants Commission of Bangladesh and Human Settlements Researcher

‘A Case for a Long-Term Action Research Programme on Climate-Change-Induced Human Displacement in Coastal Bangladesh’

Key points:

Bangladeshi and international experts and policymakers, as well as the Bangladeshi public, recognise that Bangladesh faces a serious threat from climate change and must concentrate on adaptation (as mitigating climate change is the responsibility of developed and wealthier developing nations). This must include new approaches to rural and urban settlement planning, both temporary and permanent, to cope with the mass displacement of people from the coastal regions of Bangladesh. The UK’s All Party Parliamentary Climate Change Group and the Bangladesh All Party Parliamentary Group on Climate Change and Environment could sponsor joint research programmes on human displacement, agriculture, and livelihood planning to enable scientists from developed countries to get a better sense of the situation on the ground in countries affected by climate change. Universities and research centres in both countries could organise these programmes, which the two governments and NGOs in the two countries, with the participation of local communities, would need to follow with effective adaptation projects.

Qazi Kholiquzzaman Ahmad, Chair of Bangladesh Unnayed Parishad

Key points:

Social, economic, and environmental equity, within and between generations, is at the heart of sustainable development. Climate resilience activities must be integrated into macroeconomic approaches (including national budgets, selecting projects for public support, and developing policies to attract foreign investment), with special attention paid to protecting the most vulnerable people. Both the poorest people within a country, and the poorest countries in the world, must receive compensation and assistance. National and international development and economic policy should be inclusive, in order to address not only poverty, but the social exclusion and political marginalisation of the poor, and should focus on those sectors with employment and ownership opportunities for the poorer segments of society (such as agriculture, small enterprise, improvement of urban informal sectors, and education, health, and training services). The knowledge and experiences the poor use to adapt to climate change currently can help shape assistance programmes, and local knowledge should be prioritised as a matter of principle, supplemented by additional research and foreign expertise only where necessary. For example, Bangladesh Unnayed Parishad, along with institutions from India and Nepal, researched a variety of community approaches to flood management and used local communities’ experiences to develop flood management manuals.

Developing countries need rapid economic growth so that they are able to tackle poverty and adapt to climate change, but they must also adopt low-carbon methods of development. Achieving this requires money

and technology from the developed world. However, the current international financial infrastructure, centred on the International Monetary Fund and the World Bank, needs reform. The focus should be on the global role aid needs to play, not on the national interests of donor states, and international financial institutions should be more democratic, giving poorer countries a voice in decisions. These institutions should direct funding to inclusive and sustainable development and adaptation programmes to help make people and economies more resilient in the face of climate change; they must also deliver promised funds and programmes. International aid should be managed nationally, and developing countries like Bangladesh must have ownership of both the process by which they receive aid and technology, and the use of the funds and technology they receive.

The recession is also a major opportunity for developed and large developing countries to choose a low-carbon and climate resilient path to recovery. This will require these countries to take climate change more seriously than they have and shift towards low-carbon technology and sustainable production and consumption patterns, as well as radically different ideas of economic and societal growth. Any Copenhagen agreement should include:

- Specific targets for sharp emissions reductions among developed countries, aimed at eventually stopping and reversing climate change
- The transfer of sufficient funds and technology from developed to developing countries (especially the poorest) through national mechanisms the recipients establish (this will depend largely on developed countries' consciences)

Plans among developing countries for appropriate adaptation, and for climate change mitigation where this is possible (without giving up the fight against poverty)

Lord Dixon-Smith

Key points:

Climate change equity between countries requires a general acceptance of the facts of climate change, its root cause, and the nature and degree of the changes that will be necessary to address it. The only viable ways to deal with climate change are to stop using fuel sources that emit greenhouse gases or to develop and use a method for capturing greenhouse gas emissions completely and storing them permanently. There must be absolute, permanent, and immediate reductions in emissions globally, as even if the developed world stopped emitting greenhouse gases entirely, these emissions would be replaced by those from emerging sources in the developing world. The only permissible sources of greenhouse gases should be vital industries where emissions cannot be fully eliminated, such as aviation, agriculture, smelting, and cement production.

No Copenhagen deal that would require residents of the developed world to sacrifice their standard of living to improve the lives of those in the developing world, in the interests of equity, could succeed, and even if it passed, such an agreement would take decades to be effective. However, it is possible to meet the needs of an 'energy-hungry' developed society while cutting emissions. Greenhouse gas neutral energy sources, such as direct solar power or photo-electrics, tidal power, wind energy, nuclear power, and gases from the bio-digestion of waste, are abundant, and the technologies needed to tap these sources of energy exist, even if they require further development. Developed

societies' use of energy has also become more efficient over recent decades. Ultimately, a long-term solution to climate change can only be found through technical innovation, which means that developed and developing countries are starting from a similar base: both groups must develop low-carbon systems and appropriate financial frameworks for them.

James S. Pender, Church of Bangladesh Social Development Programme

‘What Is Climate Change? And How Will It Affect Bangladesh?’

Key points:

There is a Christian theological case for taking action on climate change, especially as the poor bear the brunt of its effects. The developed world bears responsibility for climate change and must do most of the work to curb emissions, but developing countries can play a crucial role by mitigating their own emissions (especially those from deforestation) and, most importantly, advocating for mitigation in the developed world. Bangladeshis can advocate for mitigation by speaking directly to government representatives and in public or religious meetings in the developed world; providing photos and firsthand stories to partner organisations in order to demonstrate the effects of climate change on Bangladesh; organising petitions; and writing articles for publications and websites that will be seen in the developed world.

Meanwhile, Bangladesh can work to mitigate its own emissions. Bangladesh's greenhouse gas emissions are very low, but it has been following a damaging, Western-style path to development, as did India. Bangladesh needs to use less coal and develop more sources of green energy, such as solar panels, solar ovens (many are now available with built-in water purifiers), and biogas; renewable energy also reduces respiratory disease from exposure to wood smoke, and small-scale, local energy generation means that there is less demand placed on the electricity grid, leading to fewer power outages and less load-shedding. Efficient energy production and use; the wider use of public transport, rickshaws, and natural-gas-powered vehicles; and lower levels of consumption, along with more local production and recycling, are important measures. (Improving the conditions and pay of traditional ‘rag pickers’ will help promote recycling.) Family planning programmes are vital to slowing population growth and reducing demand for food and energy.

There are a variety of methods to reduce emissions from agriculture: – fewer artificial fertilisers; crop rotation; the use of artificial bacteria; using less water in rice farming to reduce methane; using crop remains for fuel or compost, instead of burning them on the spot; and growing trees and bamboo beside crops to enrich the soil, absorb CO₂, prevent erosion, and provide extra income. Finally, NGOs can campaign against deforestation, plant trees, help fund alternative livelihoods for people in tree-cutting industries, and advocate for the rights of indigenous forest-dwellers.

Bangladesh is expected to suffer a wide variety of climate change impacts. These include a temperature rise of 3.3°C by 2100 (above the global average), and a rise of up to 1°C by the 2020s and 2°C by the 2050s, with more extreme hot and cold spells. A heavier, less reliable monsoon and drier winters will lead to flooding (damaging crops and

spreading water-borne and vector-borne diseases) and drought (damaging crops and decreasing groundwater levels, and creating tensions with neighbouring India, which controls the flow of the Ganges through Bangladesh and already diverts 60% of the water for irrigation). By 2050, catastrophic floods are expected every four to twenty years. Floods also disproportionately affect the poorest (who tend to live on flood plains and suffer high levels of unemployment, illness, and malnutrition), and concentrate land ownership in damaging ways, as the poor are forced to sell flood-damaged lands to wealthy investors. Bangladesh is the third most vulnerable country in the world to sea level rise (in terms of the number of people affected), and natural processes and human activities have long been accelerating sea level rise, even without the effects of climate change. A sea level rise of 40 cm to one metre is likely by 2100, but if the Greenland Ice Sheet melts entirely, a seven metre rise would put most of Bangladesh underwater. Other effects include more intense and frequent cyclones and storms; the melting of the Himalayan ice, leading to short-term floods and long-term erosion and water shortages; increased salinity damaging agriculture and water supplies; disrupted ocean currents; and loss of biodiversity through drought, flooding, temperature changes, and salinisation (the Sundabans mangrove forest could disappear underwater by 2100). These factors will have a negative affect on agriculture (Bangladesh is likely to have an 8% smaller rice yield and a 32% smaller wheat yield by 2050), fishing (increasing acidity harms marine fish, while higher temperatures and more algae kill off river fish or prevent them from spawning), livestock (through increased fodder prices and the spread of disease), and human health (through malnutrition, diseases such as malaria, dengue fever, and cholera, heat waves, and natural disasters).

There is likely to be conflict over scarce resources and over land for climate refugees. Marginalised groups will bear the brunt of these effects. Ethnic minorities such as the Adivasis and the Garos have already been displaced and lost their land rights to ethnic Bengali internally displaced people. Religious minorities affected by climate change face discrimination when they seek help, and women are far more vulnerable than men to the effects of climate change, owing to their lack of money and resources, political power, and land rights. Many Bangladeshi women do not have independent links to the outside world, so they do not receive information about climate hazards, and many are not taught to swim. This means that catastrophic floods kill far more women than men. A 2 - 3°C temperature rise by 2100 would cost Southeast Asian countries 6% of their GDP.

Adaptation is not enough, but it is crucial and must become mainstream. Many innovative programmes exist in Bangladesh and elsewhere, and it is important to develop further adaptation methods in, and transfer methods and technology to, Bangladesh; foreign NGOs can disseminate this knowledge among Bangladeshi NGOs. Adaptation must be holistic and take other community needs into account, and developed countries have a moral obligation to help developing countries adapt. Ideally, adaptation strategies should allow a community to stay put and maintain or increase its income. There are several types of adaptation strategy: bearing losses (doing nothing), sharing losses (providing affected communities with funds to help cover their losses through aid or insurance), modifying the threat (this includes taking moderate protective measures, such as constructing a breakwater, or limiting a

community's vulnerability, such as by planting different crops), preventing effects (strong protective measures involving large investments, like sea walls), changing use (finding new livelihoods and ways to use altered or diminished resources), changing location (removing homes and businesses from the path of a climate threat), and restoration (rebuilding an area affected by climate change).

Local methods of adaptation are valuable, as they tend to be appropriate to the area, flexible, and socially and environmentally responsible, but they also suffer from a lack of organisation, resources, and information, and often favour the richest local people above the poorest.

Community-based adaptation should incorporate local knowledge; allow communities to make their own choices, and working to enhance the range of choices available; place adaptation within a broader framework of development; and evolve over time. NGOs can help by campaigning to integrate climate change into development policy, and by ensuring that it is integrated into all areas of their own work.

Adaptation includes mitigating and preparing for disasters. These measures, which include early warning systems, evacuation plans, better urban planning and the physical protection or rebuilding of assets, must take climate change into account, or they will be inadequate.

Many NGOs in Bangladesh have already helped to create community organisations (often involving women and other disempowered groups) for economic and social development. Several are using these organisations to train local people in climate change adaptation measures, such as by establishing floodbreaks and seed stores, rebuilding infrastructure, and making climate information readily available. Other NGOs, such as CARE Bangladesh, are providing climate change and adaptation training directly to individuals, communities, students, and government. Climate education should focus specifically on Bangladeshi women, who are more vulnerable to climate change, have fewer resources, and are more likely to have caregiving responsibilities (including during disasters) than men.

Adaptation techniques cover sterilising water and finding alternative sources of water (including rainwater cisterns); providing information on heatwaves and heat-related illnesses, and air-conditioned shelters for the most vulnerable; legal measures to conserve and expand biodiverse natural areas and wildlife corridors, and community action to prevent poaching in these areas; community-based tree plantations, which help mitigate flooding, storms, and erosion while providing fuel, food, fodder, medicine, and income; diversifying crop and livestock varieties, developing more resilient varieties, and growing crops on small patches of unused land; planting trees along riverbanks to stop erosion; and irrigation. Where climate change makes growing traditional crops difficult, farmers can choose different crops that are more resilient and still profitable, employ intercropping (growing different crops, including trees, side-by-side), or turn to hydroponics (already widely used in Bangladesh). Drought-resistant crops can also be grown on set-aside land to provide an emergency food supply for the poor.

Microcredit, while it does not extend to the poorest of the poor, is a valuable tool in development. However, microcredit must adapt to climate change, as the effects of climate change have wiped out many existing projects funded by microcredit. Climate sensitive microcredit

could help poor communities diversify their livelihoods and increase their income. Micro-insurance, offered by several NGOs, insures the lives, livelihoods, and homes of the poorest and most vulnerable, and should be extended throughout the country, as it fits well with existing development structures.

Emergency Capacity Building Project

‘Swelled Sufferings: Challenges After Three Months of Aila’

Key points:

Cyclone Aila devastated eleven coastal districts of Bangladesh, killing hundreds of people and leaving one million homeless. At the time of this submission, three months after the cyclone, many of the displaced were still living without shelter, sufficient water, or adequate sanitation, while their communities still flooded regularly because of broken embankments, contaminating the water supply with salt and debris. Poor maintenance, along with illegal or inappropriate use of public resources, weakened the embankments that then broke during the cyclone: for example, the government leased out local land, rivers, and the forests used as flood breaks, disrupting the natural water cycle and leading to the forests’ destruction, while illegal pipes feeding salt water through the embankments for shrimp farms eroded the soil. Climate change is already changing rainfall patterns in the region, and the sea around Bangladesh has warmed by a total of 0.6°C and risen by 7 mm per year over the last fifty years; these changes are making severe weather events like Aila increasingly common and intense.

The government of Bangladesh has significantly improved its early warning systems and disaster risk reduction initiatives over the last few decades, but much more remains to be done. The government, along with international donors, also responded rapidly to help those affected by Aila, but this response has not gone far enough. The communities that remain flooded after Cyclone Aila urgently need their embankments repaired to allow displaced people to return home. They also need funds to build new homes with adequate flood protection and to develop new, climate-resilient livelihoods. In all coastal communities, the government must ensure that communities, civil society, and development agencies have a voice in determining the maintenance of embankments, and must cancel all leases for local land, forests, and bodies of water.

The Bangladeshi Water Development Board must strictly enforce laws stopping shrimp farmers from breaching embankments. The government should also construct more shelters in coastal areas, and ensure that they remain accessible during disasters, and should make sure that drinking water is permanently available by training local residents in water purification and taking steps to prevent water-borne diseases. All governments must work towards a fair and safe deal at Copenhagen.

The Centre for Global Change and the Campaign for Sustainable Rural Livelihoods

‘Towards a Shared Understanding on Adaptation to Climate Change: In the Eyes of a Common Bangladeshi’

Key points:

The vulnerability of any system can be expressed as a function of the system's exposure to a hazard, multiplied by how sensitive the system is, and divided by the system's resilience. Communities and countries will be more exposed to climate hazards as climate change accelerates, but their level of development (which changes over time) will affect their level of exposure. Communities' sensitivity to climate risk depends on demographic, economic, social, cultural, and political factors, including the community's level of investment in climate protection and resilience. Resilience can be strengthened; in Bangladesh, the self-defeating idea that resilience is simply the ability to accept losses and "bounce back" has been too common. A community's adaptive capacity is its ability to change its characteristics or behaviour in order to become more resilient, and depends on the resources the community has and on whether there are systems in place to use those resources effectively.

However, theoretical models pay insufficient attention to time. Climate hazards change over time as global climate change worsens, just as a community's sensitivity and resilience change over time. Therefore, short-term and long-term adaptation are not always compatible, and communities must integrate adaptation into each phase of development planning over time, so that adaptation measures are appropriate for the current situation and are constantly reviewed and strengthened. If a community's resilience in the face of evolving climate threats comes close to zero, planned migration can be a form of adaptation. Bangladesh can make the case at Copenhagen for planned migration to be part of the adaptation agenda.

'Climate Change, Loss of Livelihoods, and Forced Displacement in Bangladesh: Whither Facilitated International Migration?'**Key points:**

Bangladesh is highly vulnerable to climate variability and change, especially as the majority of Bangladeshi's livelihoods depend directly on current environmental conditions (over half of the population make a living through agriculture). Despite the problems of poverty, unemployment, and high population density, Bangladesh has so far coped effectively with weather disasters and has made significant progress in sustainable development over recent decades. However, a growing population and increasing urbanisation, leading to expanded road and drainage systems and a greater demand for food, along with wide-scale deforestation and some export-driven industries (such as shrimp farming and textiles), have all made the landscape more vulnerable to flooding and salinisation, and less agriculturally productive. Bangladesh's population is expected to reach 250 million by 2100, and climate change will dramatically increase the risk of flooding, salinisation, and severe weather events beyond what Bangladesh's currently successful technologies (including information-gathering, early-warning systems, and infrastructure support, as well as crop diversification and new farming methods) can cope with. The poorest people suffer most from the effects of climate change, particularly from the subsequent lack of adequate nutrition and clean water, and the diseases spread by water contamination.

Erosion, salinisation, storm surges and rough sea events, and waterlogging have all displaced people in rural Bangladesh in recent

years by destroying either their homes or their livelihoods (primarily farming and fishing). The spread of salinity causes more people (1.2 million) to lose their livelihoods each year than the other three factors combined, and also disproportionately affect the poor, who are forced to sell their agricultural land to wealthy investors for shrimp farming. The loss of rural livelihoods is a major contributing factor to urbanisation within Bangladesh. Some people, especially coastal fishermen affected by storm surges, will attempt to migrate to another country by sea, and they often die in the process or are jailed on arrival (an estimated 20,000 Bangladeshi fisherman are in prison in neighbouring countries). In other cases, only the main breadwinner of a family will migrate to look for work. Poor farmers and fishermen who remain and try to rebuild their livelihoods often become entangled in debt.

Climate migrants within Bangladesh face social exclusion and discrimination, and do not receive the same benefits as other urban workers. Migrants tend to take non-formal or semi-formal employment and live in urban slums that city authorities periodically attempt to clear by force. Current government policy focuses on resettling migrants to coastal islands, which are not suitable because of increasing climate threats, rather than on integrating them into cities and providing jobs and social services. However, Bangladesh does not have the resources to provide for all its climate migrants, nor does it bear sole responsibility for them. Wealthy countries, which have done the most to cause climate change, should create legal mechanisms to facilitate migration from those countries most at risk, and should give climate migrants preferred status in their own immigration systems. The UNFCCC Adaptation Fund should help finance this migration.

‘Livelihoods of Coastal Fishermen in Peril: In Search of Early Evidence of Climate-Change-Induced Adverse Effects in Bangladesh’

Key points:

Unusually rough seas in the Bay of Bengal in recent years, which studies have linked to increased sea surface temperatures caused by climate change, threaten the lives and livelihoods of Bangladeshi coastal fishermen. Between 140,000 and 160,000 families depend on fishing for their income, and these families are often poor to begin with. Extreme weather events such as Cyclone Sidr, which killed thousands of people and caused billions of US dollars worth of damage in 2007, can kill fishermen or destroy their boats, as well as preventing fishing for extended periods of time. More frequently, heavy weather and high tides during the monsoon (and fishing) season severely limit fishing. Successful fishing trips require about two weeks, and fishermen borrow heavily from local moneylenders at high interest rates to cover the cost of fuel and supplies. Severe weather means that fishermen must either cut their trips short (as the law requires) and lose income, or continue in defiance of seaport authorities and risk their lives.

The Campaign for Sustainable Rural Livelihoods and the Centre for Global Change demand that Annex-1 countries drastically curb their emissions, generate funds to help vulnerable communities in the developing world adapt, and give priority to immigrants from countries vulnerable to climate change, in order to honour the rights of those affected by climate change.

'Faces of Change: A Special Issue on Climate Change'

Key points:

Countries in the global North are not taking sufficient action to mitigate their greenhouse gas emissions, and have failed to deliver promised funds for adaptation measures in the South. Northern countries also ignore the South's legitimate demands for climate change compensation, as climate change is an injustice carried out by the global North. The fight for mitigation, adaptation, and compensation is a political struggle that requires mass public involvement. At an April 2008 meeting in Dhaka, Bangladeshi politicians, academics, experts, and development practitioners proposed a new national body, bringing together central and local government, businesses, NGOs, and scientists, and representing ethnic minorities, women, and other marginalised groups, to address climate change and govern adaptation financing and technology transfer, as multilateral lending agencies (such as the World Bank) represent the interests of Northern countries and should not control these funds. Delegates also emphasised the importance of poverty mitigation and protection for the poorest people; community-based adaptation plans; making information available to train local people in adaptation and increase public awareness of the political struggle; and a strong focus on climate change among political parties. Bangladesh is the world's largest drainage system, draining 90% of the region's water into the Bay of Bengal, and the majority of people in Bangladesh depend directly on its waterways and agricultural land. As climate change will affect each of Bangladesh's thirty agro-ecological zones differently, *New Age* interviewed one individual from each zone (mostly small farmers) about changes in the local climate. The thirty interviews highlighted a number of common climate change impacts. Waterlogging is a more serious problem for farmers than flooding, which tends to leave crops intact; standing water kills crops and prevents replanting for extended periods. Monsoons have been too late and brief to adequately water the land or kill pests, while unexpected winter rains and fogs can kill crops such as wheat and potatoes. Intense storms and winds destroy crops, while extremes of heat and cold, and the diseases they nurture, kill plants and animals and affect human health. Drought, and the loss of grazing land either to environmental degradation or to agriculture, means that livestock are underweight, produce less milk, and face a higher risk of dying. Erosion means that cropland is lost and farmers must frequently rebuild their homes further inland. The land is less fertile in general, leading to low yields and forcing farmers to use more chemical fertilisers and more intricate systems of intercropping.

Similarly, climate change is displacing the birds, lizards, snakes, and wildcats that used to take care of insects and rodents, meaning that farmers must use more pesticides. The fertilisers and pesticides, however, are killing off fish, frogs, birds, and earthworms in the area, further disrupting local ecosystems. The surface water and groundwater levels are falling, meaning that farmers must use deep wells to irrigate their crops, and households are more frequently using pond water instead of groundwater for everyday uses, leading to an increase in water-borne diseases. Floods and storms severely limit transport between farms and to local markets, and knock out communications for long periods. Increased salinity also damages crops, while the declining

numbers of bees make pollinating crops more difficult.

All these factors mean that the cost of inputs for farming (such as seeds, fertilisers, and pesticides) has risen dramatically. Food costs have risen as well, but farmers still see a much lower return on their investment than in the past, while higher prices mean that they struggle to buy food for their own families. In some areas, many have reverted to subsistence farming, instead of selling their crops; in other areas, farmers specialise in the most expensive cash crops, like tobacco, but these can deplete the soil over time. Small farmers struggle to pay the lease on their land, which may be repossessed, while sharecroppers have difficulty feeding their families on what remains after they pay the required share of their crop to the landowners. Many farmers are forced to sell their livestock, which they cannot feed, or even their land, which is often bought by industrialists for factories. Issues not directly related to climate change, such as overpopulation on government-owned land (many farmers do not own their own land) and pollution from local industry, worsen the overall situation. Ultimately, farmers often find that their traditional knowledge no longer applies: they cannot plant the same crops, at the same time, and using the same techniques that their families have for generations. Many of the farmers interviewed found themselves at a loss as to how to adapt.

Oxfam Bangladesh and the Campaign for Sustainable Rural Livelihoods

Key points:

Bangladesh is uniquely vulnerable to climate change, as it is in an Asian megadelta, near the foothills of the Himalayas (with their rapidly melting glaciers), in an area where the monsoon creates one of the highest total levels of rainfall in the world. Bangladesh is also the sixth most densely populated country in the world, and 40% of its people live below the poverty line, seriously limiting Bangladesh's adaptive capacity. Bangladesh is expected to suffer hotter temperatures, more intense cyclones and storm surges, rising sea levels (directly affecting more than a million people by 2050), increased salinisation, heavier but more variable monsoons, severe flooding and erosion from rain and glacial melt, droughts, and a sharp decline in crop yields (about an 8% smaller rice yield and a 32% smaller wheat yield by 2050). These effects will displace large numbers of people. An estimated 60,000 people are expected to migrate each year due to erosion, 10,000 – 15,000 due to salinisation, and 30,000 due to waterlogging; it is predicted that storm surges will displace 100,000 – 120,000 people every three to five years.

Bangladesh therefore needs two things urgently: commitments and genuine action from developed countries to reduce greenhouse gas emissions, and funding for climate change adaptation on a mass scale, including the planned migration of huge numbers of displaced people within and out of the country.

Bangladesh expects the Copenhagen COP to secure a fair and safe post-Kyoto framework that will stabilise atmospheric concentrations of greenhouse gases at levels that will ensure a global temperature rise of no more than 1.5°C (to avoid tipping points that would make a rise of 2°C or more catastrophic for Bangladesh). The framework must require worldwide emissions to peak in 2015 and fall to at least 95% below 1990 levels by 2050. Annex-1 countries must reduce their emissions at

least 45% below 1990 levels by 2020, mostly through domestic measures (to ensure that they are put on a low-carbon footing), and Bangladesh expects advanced developing countries to move towards low-carbon economies as well, with technical assistance from the developed world. As Bangladesh's own emissions are low, most of the population is not connected to the electricity grid, and relatively clean natural gas is the most common fuel, there are few opportunities for Bangladesh to benefit from the carbon market. There are only two active CDM projects in the country. The Bangladeshi government has given up several opportunities to enter the carbon market by launching energy efficiency and reforestation projects without registering them with the UNFCCC.

The post-Kyoto framework should include three key principles for adaptation: 1) adaptation should focus on the most vulnerable countries, communities, and people in the developing world; 2) adaptation should be rights-based; and 3) adaptation should be transparent, participatory (with communities empowered to choose their own priorities and adaptive measures), sustainable, gendered, and community-based, and draw on local and indigenous knowledge. The framework should also establish an international climate risk insurance mechanism to ensure rapid payments to countries struck by climate disasters, and should ensure the planned relocation of climate migrants.

Because of developed countries' historical responsibility for climate change, they should be required to donate – not loan – 1.5% of their GDP for climate change requirements, particularly adaptation, in the developing world, in addition to their other aid commitments. This funding must be adequate and reliable. The framework should establish a transparent and easily accessible UNFCCC fund, along the lines of the Kyoto Protocol Adaptation Fund (and with similar representation from the world's most vulnerable countries), to govern all funding for adaptation, mitigation, insurance, and other climate change activities in the developing world. Annex-1 countries must transfer relevant technologies to the developing world, but developing countries should prioritise indigenous knowledge, skills, and technologies. Work towards the Millennium Development Goals must be integrated with climate change mitigation and adaptation policies, as climate change affects progress towards all the MDGs, from those dealing with poverty and health to those covering education and empowering women.

RESULTS UK (Secretariat of the UK All Party Parliamentary Group on Microfinance/Microcredit)

Key points:

The developed world has a major role to play in enabling developing countries to mitigate and adapt to climate change without damaging their economic development. Microinsurance is one valuable mechanism for climate change adaptation funding, as it can produce huge benefits from only modest inputs, and it also creates positive incentives for reducing poverty and risk. Microinsurance covers the poorest and most vulnerable households, and can help protect against the financial shock caused by certain effects of climate change, such as crop failure and increasingly frequent and intense natural disasters. This

is especially important as international humanitarian aid following a natural disaster may be insufficient (particularly if the disaster did not receive extensive media coverage, or if international donors have recently contributed to disaster relief elsewhere, as is increasingly the case due to the rising number of climate disasters), and aid can take up to eight months to reach the poorest sectors of society. Disasters often force poor people to sell their remaining assets (such as land and livestock) at a heavy discount in order to survive, which can strip entire communities of resources and deepen the cycle of poverty and aid dependence. Microinsurance schemes pay out much more quickly. When Cyclone Nisha hit the east coast of India, where many of those affected – 92,000 in all – had microinsurance with Bajaj-Allianz, most of the claims were filled within two months; this proved to be crucial, as the disaster received little international attention or aid.

Microinsurance protects a community's assets, and gives both the rural poor and financial institutions the security to invest in long-term sustainable development projects (such as better crops and agricultural techniques). Stimulating the rural economy is key to addressing poverty, as GDP growth from agriculture is at least twice as effective at reducing poverty as GDP growth from other sources.

Index-based microinsurance policies pay out even faster than other microinsurance schemes. These policies are written against a physical trigger (such as rainfall, or lack of rainfall), which is measured at local weather stations. Insurers pay based on the severity of the disaster, and do not need to spend time evaluating individual claims. Index-based microinsurance also avoids the 'moral hazard' of insurance (the fact that insured people may take unwise risks, because their assets are covered). Because insurance payouts are linked to wider climate conditions, not to damage to an individual's assets, the rural poor are encouraged to invest in and protect their assets regardless. Index-based schemes are simple and inexpensive to administer, especially when they are "bundled" with existing services, like microsavings or microcredit. Bundled services (such as the high-profile scheme run by Opportunity International, the Malawi Rural Finance Corporation, and the National Smallholder Farmers' Association of Malawi) offer a sustainable and comprehensive way to deal with climate risks that inhibit development.

However, microinsurance faces certain challenges. In major disasters, microinsurance claims will come from many households over a wide area, and will be made on multiple policies at once (for example, life, housing, asset, and health insurance). These multiple claims would overwhelm most current individual microfinance institutions, but if these institutions raise their premiums so that they are able to cover huge numbers of claims, microinsurance will be out of the reach of the rural poor. The international community can play a key role in reducing poverty and creating an equitable solution to climate change adaptation by ensuring that developing countries can adopt microinsurance on a large scale. Any agreement reached at the Copenhagen COP should set up a new, transparent international body to facilitate reinsurance and risk-sharing across regions, so that disaster risk does not undermine the potential of microinsurance.

The developed world could also provide adaptation funding to help set up large-scale national and regional microinsurance schemes, and technical support to help develop appropriate insurance and regulatory

frameworks in developing countries. Charities such as the Melinda & Bill Gates Foundation have already funded microinsurance schemes. Many large financial firms are already providing specialist reinsurance for microinsurance institutions, as well, though more such programmes are needed. Most importantly, the rural poor are adopting microinsurance in many countries, particularly Bangladesh, which has become a world leader in the field. This gives the governments and private sector of the developed world a chance to support an adaptation funding mechanism that the developing world is already using, rather than prescribing new policies.

European Action Group on Climate Change in Bangladesh

Key points:

The post-Kyoto framework should ensure overall cuts in greenhouse gas emissions of 95%, relative to 1990 levels, to prevent a global temperature rise of more than 1.5°C. Developed countries, which bear the most responsibility for climate change, must commit to cutting their emissions by 45% by 2020, and the majority of these cuts must be made domestically, not through carbon offsetting. Advanced developing countries should also move towards low-carbon economies, with funding and technical assistance from developed countries.

The developed world should make €10 billion (about 160 billion USD) available annually for climate change mitigation and adaptation in the developing world, with the EU and the US each covering about €5 billion of this cost, as compensation for the developed world's role in creating climate change. This money must be additional to existing international aid commitments. Oxfam estimates that if climate change funds are simply diverted from existing aid programmes, it will mean at least 75 million fewer children worldwide will be able to attend school, and 8.6 million fewer people will have access to HIV/AIDS treatment. Developing countries must have control over how mitigation and adaptation funding is spent. A new, purpose-built framework, representing both developed and developing countries and directly accountable to the UNFCCC, should be in charge of raising, governing, and distributing climate finance. There should also be mechanisms for consulting with communities affected by climate change, and for monitoring adaptation on a global scale. In addition, any agreement reached at Copenhagen should provide adequate support for the socially appropriate and gender-sensitive development and spread of necessary technology, and for training people in the developing world in its use. Priority should be given to indigenous knowledge and skills, but technology should also be transferred from the developed world, unhindered by intellectual property laws. The world's most vulnerable countries should be represented on international technical panels.

Despite the fact that Bangladesh is on the front line of the struggle against climate change, climate change is not a high priority for Bangladeshi political parties. Most of the discussion is conducted in highly technical terms among academics and NGOs, shutting out both the Bangladeshi population and the diaspora. The UK and Bangladeshi parliaments, along with other agencies, can take the lead in reaching out to communities and civil society, as they have the necessary contacts. In particular, attention must be paid to the needs of women. Major cities in the UK and Bangladesh can also play a crucial role by working

together across national borders on mitigation and adaptation issues.

As Bangladesh has extensive experience dealing with climate disasters, the country should take the lead in pioneering adaptation measures. Bangladesh has budgeted 700,000 USD for climate change adaptation, but will need further funding to dramatically extend its adaptation programmes. Bangladesh's adaptation measures should focus on enhancing the resilience of the population, with provisions for regularly updating infrastructure (including distributing up-to-date maps), as infrastructure collapse worsens the human impact of a disaster. The Bangladeshi government is already taking steps in this direction, such as building cyclone shelters, constructing an early warning system, and raising the level of roads and embankments. There must also be arrangements to provide clean water, health and sanitation facilities, education, and livelihoods during increasingly frequent emergencies.

Beyond emergency response, the government should prioritise air, water, and soil quality: important measures to take include using more solar energy, recycling, and disposing of hazardous waste safely. The government should also pay more attention to the health impacts of climate change, including the problems caused by desertification, the spread of diseases through floods, natural disasters, and water contamination (increased salinity leads to high blood pressure, for example, while arsenic contamination also affects many water supplies). Bangladesh must also provide homes and livelihoods for those who will be displaced by rising sea levels. Finally, the Bangladeshi government must provide assurances that aid will reach the most vulnerable people, and should form a National Committee for the Rehabilitation of Climate Change Refugees, with representatives from affected coastal communities. The European Action Group on Climate Change in Bangladesh calls on the Bangladesh All Party Parliamentary Group on Climate Change and Environment to produce a study on people displaced from coastal areas, and on the government's response.





বাংলাদেশ জাতীয় সংসদ

Bangladesh Parliament – Members of All Party Group on Climate Change & Environment:

Chief Patron : Hon. Abdul Hamid Advocate, (Speaker, Bangladesh Parliament)

Chairperson : Hon. Saber Hossain Chowdhury

Hon. Abdul Momin Talukder
Hon. Bir Bahadur
Hon. Hafizuddin Ahmed

Hon. Tanvir Shakil Joy
Hon. Zunaid Ahmed Palak
Hon. Romana Mahmud

Hon. Hamida Banu

Members :

Hon. Md Abdur Razzak
Hon. Khan Tipu Sultan
Hon. Prof. Dr. M. Aamnullah
Hon. A.K.M. Mozammel Haque
Hon. Engr. Shaikh Muzibur Rahman
Hon. Shri Biren Sikdar
Hon. Md Abdul Mannan
Hon. Md. Emaz Uddin Pramanik
Hon. Mahabub Ara Begum Gini
Hon. Md. Akabbar Hossain
Hon. Md. Israfil Alam
Hon. Maruf Saklaan
Hon. Azaduzzaman Noor
Hon. Zahid Ahsan Russel
Hon. Md. Mohibur Rahman Manik
Hon. Md. Mir Showkat Ali Badsha
Hon. Giasuddin Ahmed
Hon. Md. Sobur
Hon. Md. Shohrab Ali Sana
Hon. Monoranjan Shil Gopal
Hon. ABM Fazle Karim Chowdhury
Hon. Md. Mahmud-us-samad Chowdhury
Hon. Md. Nani Gopal Mondal
Hon. Md. Asaduzzaman Khan
Hon. Shirin Sharmin Chowdhury
Hon. Md. Monowar Hossain Chowdhury
Hon. Zinnatun Nesa Talukdar
Hon. Tahura Ali
Hon. Md. Fazle Hossain Badsha
Hon. Najrul Islam Monju
Hon. Mahabubuddin Khokon
Hon. Z.I.M. Mostofa Ali
Hon. Akram Chowdhury
Hon. Omar Faruk Chowdhury
Hon. Ashraf Ali Khan Khasru
Hon. Md. Merajuddin Mollah
Hon. Mokbul Hossan
Hon. Faridun Nahar Laily
Hon. Md. Mojaher Ali Prophan

Hon. Sk. Afil Uddin
Hon. Zahid Maleque
Hon. Benjir Ahmed
Hon. Md. Shafikul Ajam Khan
Hon. Md. Shah Alam
Hon. Dr. Mujibur Rahman Faruk
Hon. Begum Saleha Mosharof
Hon. Md. Ilias Uddin Mollah
Hon. Md. Shahriar Alam
Hon. A. B. M. Anwarul Huq
Hon. Md. Monjurul Islam
Hon. S.M. Abdul Mannan
Hon. Hamiduzzaman
Hon. Md. Khalid Hossain
Hon. Md. Shahab Uddin
Hon. Md. M.A. Talha
Hon. Md. Azizul Haque Chowdhury
Hon. Sadhona Halder
Hon. Md. K.M. Khalid
Hon. Md. Ziaur-Rahman
Hon. B.M. Muzammel Haque
Hon. Md. Monjur Kader Quraishi
Hon. Habibun Nahar
Hon. Md. Afazuddin Ahmed
Hon. Md. Abdul Hye
Hon. Muhammad Nazrul Islam
Hon. Md. Jasim Uddin
Hon. Md. Talukdar
Hon. Md. Yunus
Hon. Md. Kabirul Haque
Hon. Md. Ranajit Kumar Roy
Hon. Md. Mujibir Rahman
Hon. Syed Mohsin Ali
Hon. Md. Shafiqul Islam
Hon. Md. Abu Zahir
Hon. Md. Abdullah Al Islam Jakob
Hon. Mustaque Ahmed Ruhi
Hon. Talukdar Md Towhid Jung
Hon. Md. Iqbalur Rahim
Hon. Md. Jafar Ali

Hon. Abul Kalam Azad
Hon. Md. Murad Hassan
Hon. Ashrafunnesa Mosaraf
Hon. Ethin Rakhain
Hon. Shawkat Ara
Hon. Shahida Tarakh Dipti
Hon. Parvin Talukdar
Hon. Sultana Bulbul
Hon. Safiya Khatun
Hon. Nurul Majid Mahmud Humayun
Hon. Rasheda Begum Hira
Hon. Tarana Halim
Hon. Jahanara Begum
Hon. Syeda Asfa Ashrafi Papia
Hon. Musammot Shammi Akther
Hon. Nilufar Chowdhury Moni
Hon. Asma Zarin Jhumu
Hon. Momtaz Begum
Hon. Jobeda Khaton
Hon. Syeda Jebunnesa Haque
Hon. Salma Islam
Hon. Noor-E-Hasna Lily Chowdhury
Hon. Nazma Akther
Hon. Rowshan Jahan Sathi
Hon. Shafali Montaz
Hon. Farida Rahman
Hon. Sultana Bulbul
Hon. Mahfuza Mondal
Hon. Chemon Ara Begum
Hon. Ahmed Nazmin Sultana
Hon. Jahanara Begum
Hon. Khadija Khatun Shefali
Hon. Begum Nur Afroje Ali
Hon. Mahjabeen Murshad

Secretary General :

Mr. Shishi Shil



UK All Party Parliamentary Climate Change Group

Chair: Colin Challen MP

Vice-Chair: Lord Redesdale **Treasurer:** Peter Ainsworth MP **Secretary:** Dr Desmond Turner MP

Members

Labour Party

Mr Dave Anderson
Mr Gordon Banks
Ms Celia Barlow
Mr Hugh Bayley
Ms Roberta Blackman-Woods
Ms Lyn Brown
Mr Colin Burgon
Mr Stephen Byers
Mr David Chaytor
Ms Katy Clark
Mr Jeremy Corbyn
Ms Ann Cryer
Mr Jim Cunningham
Ms Janet Dean
Mr Jim Dobbin
Mr David Drew
Mr Paul Flynn
Mr Mike Gapes
Mr Ian Gibson
Ms Nia Griffith
Mr John Grogan
Mr Fabian Hamilton
Mr Stephen Hesford
Mr Kelvin Hopkins
Mr Eric Joyce
Mr Ashok Kumar
Mr Mark Lazarowicz
Ms Judy Mallaber
Mr John McFall
Ms Anne McKeichin
Mr Alan Meale
Ms Anne Moffat
Mr Elliot Morely
Ms Madeline Moon
Mr Gordon Prentice
Mr Gwyn Prosser
Mr Andy Reed
Ms Linda Riordan
Mr Chris Ruane
Ms Clare Short
Mr Alan Simpson
Mr John Smith
Mr Peter Soulsby
Mr Howard Stoate
Ms Emily Thornberry
Mr Rudi Vis
Dr Alan Whitehead
Ms Betty Williams

Labour Peers

Baroness Hilton of Eggardon
Lord Anderson of Swansea
Lord Berkeley
Lord Christopher
Lord Clinton-Davis
Lord Corbett of Castle Vale
Lord Cunningham of Felling
Baroness David

Baroness Gale
Lord Graham of Edmonton
Lord Haworth
Lord Howie of Troon
Lord Hunt of Chesterton
Lord Hunt of Kings Heath
Lord Frank Judd
Lord Mitchell
Baroness Nicol
Lord Paul
Lord Pendry
Lord Rogers of Riverside
Lord Sewel
Lord Smith of Finsbury
Lord Solely
Lord Strabolgi
Lord Larry Whitty
Lord Williams of Elvel

Conservative Party

Mr Tony Baldry
Mr Gregory Barker
Mr Peter Bottomley
Mr Julian Brazier
Mr David Curry
Mr David Davies
Mr Stephen Dorrell
Mr Philip Dunne
Mr Tobias Ellwood
Mr Roger Gale
Mr John Gummer
Mr John Horam
Lord Inglewood, MEP
Mr Nick Hurd
Mr Michael Jack
Mr Robert Key
Baroness Miller of Hendon
Ms Anne Milton
Mr Andrew Pelling
Mr David Ruffley
Mr Bob Spink
Mr Andrew Tyrie
Ms Anne Widdecombe
Mr Bill Wiggin
Mr Tim Yeo

Conservative Peers

Lord Campbell of Alloway
Viscount Bridgeman
Lord Cavendish of Furness
Lord Chilver
Lord Coe
Earl of Coutuwn
Rt. Hon the Lord Crickhowell
Lord Dixon Smith
Lord Forsyth of Drumlean
Lord Glentoran
Baroness Hanham
Earl of Jellicoe

Earl of Lindsay
Lord Lyell of Markyate
Baroness Platt of Writtle
Rt. Hon the Lord Plumb
Rt. Hon the Lord Renton
Earl of Selbourne
Lord Selkirk of Douglas
Earl of Shrewsbury and Watford
Lord Skelmersdale
Lord Soulsby of Swaffham Prior
Lord Young of Graffham

Liberal Democrat Party

Mr Norman Baker
Mr Colin Breed
Ms Annette Brooke
Ms Lorley Burt
Ms Julia Goldsworthy
Mr Mike Hancock
Mr Chris Huhne
Mr Paul Holmes
Mr Charles Kennedy
Ms Susan Kramer
Mr John Leech
Mr John Pugh
Mr Andrew Stunnell
Mr Steve Webb
Mr Mark Williams
Mr Stephen Williams

Liberal Democrat Peers

Lord Bradshaw
Lord Chidgey
Lord Holme of Cheltenham
Lord Livsey of Talgarth
Baroness Maddock
Earl of Mar and Kellie
Baroness Sharpe of Guildford
Lord Taverne
Lord John Thurso
Baroness Tonge
Lord Tope

SNP

Mr Mike Weir