

# Climate Change and the Call to Global Solidarity

## Executive Summary

This paper sets forth CRS' perspective on global climate change and is intended to serve as a resource for divisions to develop follow up plans, including advocacy positions, materials to inform and engage our US constituency, steps to ensure capacity in overseas programs, and management of CRS' own impact on the environment.

Specifically, the paper addresses the following areas:

- How climate change is currently affecting the people we serve overseas, and what is expected to happen into the future.
- What do the teachings of the Church say about how we should respond to climate change and
- What can CRS do to meet this challenge.

There is now a preponderance of scientific opinion that global warming is real, that human activity, especially the burning of fossil fuels and destruction of forests, is a significant cause, and that it poses a severe threat to life as we know it. In 2007, the International Panel on Climate Change, comprised of hundreds of scientists from many disciplines, issued its fourth consensus report with these conclusions and predicting a variety of effects with implications for CRS' work. There will be more and stronger natural disasters, dry areas will be drier and wet areas wetter, rain will become less predictable, more people will die from increase from tropical diseases, heat waves, floods, and droughts, and the sea level will rise, endangering the 200 million people living in coastal floodplains.

These effects will be felt most strongly in regions where CRS works, where societies are least equipped to adapt to them. The poor and vulnerable in these regions bear a disproportionate portion of the burden, despite having contributed far less to the problem. It is not too late to make changes that will avoid the worst effects of climate change, but choices societies make today will have profound effects on generations of people to come.

The Church has a long tradition of teaching and action on care for God's creation. In 2001 the United States Conference of Catholic Bishops issued a call to action on climate change, pointing out that the principles of Catholic Social Teaching obligate us to take action. They noted the ethical basis of this action in the principles of prudence, common good and option for the poor. Catholic organizations across the U.S. and around the globe are taking up the climate change issue, and by working in partnership CRS can contribute to broad and lasting impact.

The paper recommends that CRS respond to this challenge in several ways:

1. Overseas programs should help communities to **increase their resilience to climate shocks.**

2. Through its operations in the US, CRS should **educate and engage the Catholic community** from the perspective of justice and solidarity with the poor and marginalized overseas.
3. CRS should **advocate with policy makers** on legislation and issues of adaptation funding, regulating carbon emissions, the role of biofuels in the global food crisis, and commitment to effective international agreements.
4. CRS should **reduce its own carbon footprint** and help to **offset carbon emissions**.

# Climate Change and the Call to Global Solidarity

*“Preservation of the environment, promotion of sustainable development and particular attention to climate change are matters of grave concern for the entire human family. No nation or business sector can ignore the ethical implications present in all economic and social development. With increasing clarity scientific research demonstrates that the impact of human actions in any one place or region can have worldwide effects.”* Pope Benedict XVI to religious and scientific leaders on September 1, 2007

## **I. Introduction**

The Earth’s climate is changing with important consequences for human health and well being. According to the Intergovernmental Panel on Climate Change (IPCC), some of this change is natural, but much of it is caused by human activity, primarily the burning of fossil fuels and the destruction of forests. Scientists tell us that the level of carbon dioxide in the atmosphere is at its highest level in the last 650,000 years, and continues to rise. There is broad scientific agreement that if the concentration of carbon dioxide and other greenhouse gases continue to increase, there will be significant consequences for food production, access to fresh water, the frequency and severity of natural disasters, and people’s health. What makes this issue even more compelling, especially for those in the faith community, is that these consequences will be greatest for the poor and vulnerable, although they have contributed the least to the current situation. Catholic Social Teaching calls on us to address this moral problem in practical ways to mitigate climate change and help the poor and vulnerable adapt to its consequences.

For Catholic Relief Services, our mission of assisting the poor and vulnerable around the world is challenged in new ways by climate change. Our programs in agriculture will need to adapt to new and less predictable weather conditions, programs to help people get access to clean water will be challenged by dropping water tables and less predictable surface water, health programs will need to address spreading disease vectors in places they have never been, and our emergency programs will need to plan for the unexpected on an unprecedented scale. Current weather pattern disruptions are already posing challenges to the strides we have made around the world over many years against grinding poverty.

This paper is written for CRS staff. It will lay out the basic issues involved in climate change, and how Catholic Social Teaching guides our response. It will review opportunities for action overseas and in the US that will allow CRS to use its capacities and relationships in the best way possible. It is designed to serve as a resource for CRS staff to 1) develop thoughtful and persuasive educational materials for US Catholics and options for them to engage on the issue; 2) integrate messages and stories of the effect of global climate change on the poor into existing programs, such as Operation Rice Bowl; 3) fashion media strategy to communicate those messages; and 4) significantly move forward with focused advocacy

efforts. A wide variety of CRS staff, staff of other Catholic organizations, the US Conference of Catholic Bishops, and other development and environmental organizations knowledgeable about the issue were consulted in developing this paper (see Annex I for a complete list).

## **II. The Problem**

Since the beginning of the industrial age, the average temperature of the earth's atmosphere has risen 0.76 degrees centigrade. This seems like a very small change, but given the complexity of the global climate and the variations by region, the consequences of this change are important for life. The main cause of this warming is the burning of fossil fuels--and to a lesser extent, changes in land use such as deforestation--which build up greenhouse gases in the atmosphere, especially carbon dioxide. Greenhouse gases increase the Earth's ability to trap heat generated by the sun and warm the planet overall. If we continue to build up greenhouse gases at the current rate, scientists predict that temperatures could increase by over 6 degrees centigrade by the end of the century, which would profoundly transform life on earth. If we take action now, it is possible to limit the temperature increase and avoid some of the worst consequences. So decisions we make today will affect generations to come.

Since the climate is such a complex system, scientists from many disciplines have come together to combine their observations and predictions. The main body drawing together the voluminous research is the Intergovernmental Panel on Climate Change (IPCC) whose 2007 report concluded that "warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level."

Many questions remain about what local effects will be. But overall, data shows that climate change is already happening, and is in part driven by human activity.

Climate change is a relief and development issue, with important implications for how we help communities in agriculture, water, health and natural disasters.

But climate change is a justice issue as well. The United Nations Development Program points out that the average person in the United States produces more than 20 tons of carbon dioxide per year, while the average Tanzanian produces 0.1 ton. Yet climate change will affect the poor in countries where CRS works more than it will affect people in the US and Europe. The people CRS serves overseas are particularly vulnerable because they

- rely more on natural resources, including farming, fishing, and forest products
- are less resilient to changes, since they have fewer assets and socioeconomic support systems
- live in regions where the effects of climate change will be felt most severely.

Archbishop Emeritus Desmond Tutu described this issue of justice more plainly: “Put bluntly, the world’s poor are being harmed through a problem that is not of their making. The footprint of the Malawian farmer or the Haitian slum dweller barely registers in the Earth’s atmosphere.”

And as stated in USCCB testimony before the Senate Environment and Public Works Committee, “The real ‘inconvenient truth’ is that those who contribute least to climate change will be affected the most and have the least capacity to cope or escape. The poor and vulnerable are most likely to pay the price of inaction or unwise actions. We all have an obligation to help make sure their voices are heard, their needs addressed, and their burdens eased as our nation and the world address climate change.”

The effects of climate change will vary widely from region to region, and are difficult to predict. Based on numerous studies over many years, however, the IPCC has predicted some general trends with high confidence:

- increase in the frequency of weather extremes: extended heat waves and heavy precipitation, etc.;
- increase in tropical cyclone intensity, stronger storms and more flooding;
- dry areas will be drier and wet areas wetter, and rain will become less predictable
- increase in human deaths from tropical diseases, heat waves, floods, and droughts
- sea level rise, endangering the 200 million people living in coastal floodplains

Some of the areas from the 2007 IPCC report of particular concern to CRS are the following.

**Africa** – By 2020, scientists predict that between 75 and 250 million people will not have enough water for basic human needs, and in some countries yields from rain-fed agriculture could be reduced by up to 50%. Especially hard hit will be East and Southern Africa and the Sahel region of West Africa. In the longer term, damage from sea level rise to low lying coastal areas with large populations could be devastating. Increased temperatures will expand the range of malaria as well as lengthen the highest risk seasons. Malaria already takes 1 million lives per year, 90% of them in Africa, and so the consequences could be severe.

**Asia** – Much of the freshwater enjoyed by Central, South, East and Southeast Asia comes from snow and glacial melt in the Himalayan mountain range. As temperatures increase, less snow falls and glaciers melt faster so that by the 2050s, freshwater availability in these regions will decrease. This will have an impact on hundreds of millions of people in the large river basins fed by these rivers and streams. The heavily populated megadelta regions of South, East, and Southeast Asia will also be at increased risk from flooding from the sea and rivers. Increased flooding and droughts will exacerbate diarrheal disease which remains one of the main killers of children.

**Latin America** – Scientists believe that the tropical forest of eastern Amazonia will turn into savannah by 2050, and semi-arid areas will turn arid. The productivity of some important crops and livestock will decrease, though soybean yields in temperate zones will

increase. Changes in precipitation and the disappearance of glaciers will significantly reduce water availability for human consumption, agriculture, and energy generation.

**Small Islands** – Sea level rise will exacerbate salt water inundation, storm surge, erosion and other coastal hazards, threatening infrastructure and coastal settlements. In December 2007 the first climate refugees in the Pacific abandoned their island home due to rising seas, and many more islands will likely follow in the next decades. Coral bleaching will reduce the productivity of coral systems, harming coastal fisheries. By mid-century water resources will become insufficient to meet demand during low rainfall periods. Higher temperatures will accelerate existing problems and with the invasion by non-native species of plants and animals, livelihoods based on natural resources could be threatened.

In all these regions, the effects will be felt sooner and more severely by those who are least equipped to adapt and respond. Farmers, fishing communities and those dependent on forest products will be most affected, as will those with the weakest asset base to draw on, which would otherwise enable them to adapt to new agricultural systems and more frequent natural disasters.

For cities, climate change will likely increase populations as “climate migrants” are forced to leave rural areas for urban centers. Increased climate variability will make agriculture a less reliable source of livelihood, driving more people from rural areas to cities. The majority of the world’s population now lives in urban areas, and problems of housing, health, and poverty already strain urban infrastructures and services. Increased migration from rural areas will exacerbate these problems. In addition, the majority of megacities are near oceans where rising sea levels and more severe storms will combine to endanger many more lives.

Development and climate change are the two big issues of the 21st Century. And unless we tackle them together we will fail on both of them. Climate change, if it goes on unmanaged will undermine development. Any response to climate change which appears to stall development will fail. It will fail politically and it will deserve to fail. Unless we tackle them both together we are not going to be successful on either...Now, how does all this work? Well, climate change starts with people and it ends in people. *Lord Nicholas Stern, 2008*

Economic effects will vary widely as well. The most comprehensive effort to measure the expected economic impacts of climate change is *The Stern Review: The Economics of Climate Change*, prepared by the British Treasury Department, led by Lord Nicholas Stern. The study concluded that “the evidence gathered by the Review leads to a simple conclusion: the benefits of strong and early action far outweigh the economic costs of not acting.”

The Review goes on to state that

if we don’t act, the overall costs and risks of climate change will be equivalent to losing at least 5% of global GDP each year, now and forever. If a wider range of risks and impacts is taken into account, the estimates of damage could rise to 20% of GDP or more. In contrast, the costs of action – reducing greenhouse gas emissions to

avoid the worst impacts of climate change – can be limited to around 1% of global GDP each year.

One benefit of acting sooner than later could be to create significant business opportunities, as new markets are created in low-carbon energy technologies and other low-carbon goods and services. These markets could grow to be worth hundreds of billions of dollars each year, and employment in these sectors will expand accordingly.

The conclusion from this is that while the cost of dealing with climate change may be high, the cost of not dealing with it will be much higher.

### **III. Response of the Church**

The Church teaches us that creation is a gift from God, and that we have the moral obligation to exercise responsible stewardship of God's creation for ourselves and for future generations. As the urgency of environmental issues has become more evident in recent years, Church leaders have increasingly raised their voices to call for effective responses, consistent with two overarching moral questions:

- how to exercise responsible stewardship over creation, especially as human capacity to alter the natural environment grows;
- how to ensure that care for creation is promoted in a way that earthly resources are seen as gifts to be shared by all (the common good), and that promotes integral human development based on justice.

There are numerous passages from scripture, as well as from the examples and writings of the Saints, most notably St. Francis of Assisi, that affirm the centrality of care for God's creation and the poor and vulnerable within the Catholic tradition. Environmental references are found throughout the history of Catholic Social Teaching, and with Vatican II a reaffirmation of these ancient texts and long-ago Saints that understands humankind's role in the created order as that of tenants, not owners of this earth. The world is seen as a legitimate context for the discovery of God, and the goodness of nature is intrinsic, not solely based on its utilitarian value to human kind. This new lens is evident throughout recent papal statements. As far back as 1972 Pope Paul VI called for "respect for the biosphere" to preserve "a hospitable earth for future generations."

One truly noteworthy example comes from Pope John Paul II's World Day of Peace message in 1990 entitled *The Ecological Crisis* in which he called the world to "ecological conversion" in order to head off "catastrophe". He signaled the interdependence between humans and the environment in stating, "We cannot interfere in one area of the ecosystem without paying due attention both to the consequences of such interference in other areas and to the well-being of future generations."

Shortly thereafter, the U.S. bishops issued their pastoral statement, *Renewing the Earth: An Invitation to Reflection and Action on Environment in Light of Catholic Social Teaching, 1991*. In this groundbreaking document, they characterized the environmental crisis as a moral challenge, calling on people to examine how they use and share the goods of the earth – including with future generations. They linked this call to the duty of solidarity in saying, “Our mistreatment of the natural world diminishes our own dignity and sacredness, not only because we are destroying resources that future generations of humans need, but because we are engaging in actions that contradict what it means to be human. Our tradition calls us to protect the life and dignity of the human person, and it is increasingly clear that this task cannot be separated from the care and defense of all of creation.”

As public debate over the issue of global warming continued to grow, the U.S. bishops again spoke out. In 2001, they issued a new pastoral statement, *Global Climate Change: A Plea for Dialogue, Prudence, and the Common Good*. They emphasized that, “at its core, global climate change is not about economic theory or political platforms, nor about partisan advantage or interest group pressures. It is about the future of God’s creation and the one human family. It is about protecting both ‘the human environment’ and the natural environment.” They pointed out that there is a special role for the United States: “Because of the blessings God has bestowed on our nation and the power it possesses, the United States bears a special responsibility in its stewardship of God’s creation to shape responses that serve the entire human family.”

In their statement the Bishops present three ethical priorities as the foundation for debate on climate change:

- **prudence**, which requires wise action now to address problems that will grow in their magnitude and consequences;
- “bold and generous action on behalf of the **common good**” rather than the demands of narrow interests, and
- a clear priority **for the poor**, who will bear the greatest burdens and pay the greatest price for the consequences and costs of climate change.

Of particular concern to the Bishops’ Conference is the disproportionate impact that climate change will have on the poor and vulnerable. “Action to mitigate global climate change must be built upon a foundation of social and economic justice that does not put the poor at risk or place disproportionate and unfair burdens on developing nations.” They also stressed the need for personal conversion and the responsibility that each of us has to preserve and protect the environment through lifestyle and consumption choices.

Pope Benedict XVI has continued and extended this tradition. In a speech before young people in Loretto, Italy in September, 2007, he urged, “Before it’s too late, we need to make courageous choices that will recreate a strong alliance between man and Earth.” “We need a decisive ‘yes’ to care for creation and a strong commitment to reverse those trends that risk making the situation of decay irreversible.”



During his visit to Australia for World Youth Day in July 2008, the Pope referred to environmental issues in his public statements more often than any other social or cultural concern. In thanking the youth who gathered to welcome him, he observed, “Perhaps reluctantly we come to acknowledge that there are also scars which mark the surface of our earth: erosion, deforestation, the squandering of the world’s mineral and ocean resources in order to fuel an insatiable consumption. Some of you come from island nations whose very existence is threatened by rising water levels; others from nations suffering the effects of devastating drought.” He continued by urging the youth to avoid consumerism and embrace the values of self sacrifice and solidarity.

#### **IV. Opportunities for Action**

At CRS’ World Summit in 2000, a vision was created for the agency which affirms that

*Solidarity will transform the world to:*

- *Cherish and uphold the sacredness and dignity of every person*
- *Commit to practice peace, justice and reconciliation*
- *Celebrate and protect the integrity of all creation*

Climate change poses a threat to all elements of the transformed world we envision: human life and dignity, peace and justice, the integrity of creation. At the same time, this issue is perhaps the clearest example of how people are connected across the globe as part of one human family. Solidarity, the key concept and starting place for CRS’ vision, grows out of that interconnectedness and calls us to a multifaceted and proactive response to the challenge of climate change.

There are several areas of opportunity, which CRS should pursue simultaneously and in a coordinated manner:

- 1. Enhance climate change programming capacity overseas**
- 2. Education and engagement of the U.S. Catholic community**
- 3. Advocacy with policy makers**
- 4. Reducing CRS’ own carbon footprint**

#### ***Opportunity 1: Enhance climate change programming capacity overseas***

The response of CRS overseas programs to the growing threat of climate change takes two forms:

- **Helping communities adapt to the consequences of climate change**
- **Helping communities mitigate climate change while meeting their own needs.**

“**Adaptation**” refers to responses that increase the ability of human and ecological systems to cope with the *effects* of climate change. Adaptation includes the development of drought resistant crops or disaster risk reduction programs.

**“Mitigation”** refers to interventions to reduce the *causes* of climate change by reducing greenhouse gas emissions or absorbing greenhouse gases. Examples include renewable energy systems or forest protection.

For CRS, most opportunities are in adaptation, reducing the risk of natural disasters and “climate proofing” development programs. But there are some potential interventions in mitigation through forestry which can not only absorb carbon dioxide but help farmers make a living.

It is beyond the scope of this paper to make detailed recommendations for each sector of intervention. What follows are some general issues that programs face and possible responses to them. For each sector, CRS staff should study the implications of climate change for programming. In addition, explicit guidance should be developed on climate change and its relationship to the Integral Human Development framework. Staff should also have the opportunity to learn about climate change and impacts in their region or sector, and make appropriate adjustments to programming strategies as a result.

## **A. Adaptation Programming**

The 2007 IPCC report points out that “the capacity to adapt is dynamic and is influenced by a society’s productive base, including natural and man-made capital assets, social networks and entitlements, human capital and institutions, governance, national income, health and technology.” CRS programs need to increase the capacity of societies to build these assets, networks and institutions to increase resilience to coming changes.

Adaptation projects need to use the same principles of integral human development that current development programs employ, since years of experience have shown what works and what does not. As a result, adaptation programming looks very much like development programming. These programs can best be thought of as a spectrum of assistance: from programs that focus exclusively on development goals with adaptation as an added benefit, to programs designed and implemented explicitly to deal with climate change.

Following the analysis of the World Resources Institute, projects along this spectrum can be grouped into four main types:

1. **Addressing the drivers of vulnerability** – on this end of the spectrum, projects attempt to deal with what it is that makes communities vulnerable to the effects of climate change. Improving livelihoods, increasing literacy, and addressing problems of HIV/AIDS all increase the ability of communities to react to any shock, including climate change.
2. **Building response capacity** – next along the spectrum are programs that build the social and institutional ability to deal with change, such as improved communications and planning processes, better weather mapping, and improved natural resource management on the scale of landscapes and watersheds.

3. **Managing climate risk** – these programs are explicitly designed to reduce the effects of climate change on resources and livelihoods, including disaster risk reduction, drought resistant crops, and climate proofing physical infrastructure such as wells and buildings.
4. **Confronting climate change** – these actions deal with risks beyond the normal range of climate variability, such as relocation of communities to higher ground.

The farther along the spectrum one goes, the less these interventions resemble traditional relief and development programming, and the more innovative programming needs to be.

The following discussion breaks down issues to consider for adaptation programming by sector: water, agriculture, health, and emergency prevention, preparedness, protection, and response.

### **i. Water Resources**

In many areas, water tables are dropping, making well digging and drilling more difficult. Surface water sources are drying up faster than in the past. Rainfall has become more erratic, with rainy seasons less predictable. Often when rain does come, it falls with much more intensity, increasing flooding and erosion. In parts of Africa drier pasture lands are diminishing, and communities are becoming more stressed economically.

Hydrological cycles like these are normal, but in the last few decades rainfall has not returned to the peaks it had in previous cycles. CRS staff expect these trends to continue.

CRS water programs will need to:

- Allocate additional funds for water wells because people will need to drill and dig deeper as water becomes harder to find.
- Enlarge current and planned microreservoirs and community dams because surface water will not last as long through dry seasons.
- Elevate water points in areas prone to flooding so communities do not lose access to potable water during natural disasters.

### **ii. Agriculture**

CRS agriculture programs are already dealing with weather variability and the low asset base of rural communities. The new CRS agriculture strategy reflects this reality, and explicitly takes climate change into account in its recommendations. Improving weather predictions, early warning systems and building the farm-management assets of rural communities will help communities be more resilient in the face of changing conditions. As noted above, these have always been best practices of agriculture programming, and now in the face of climate change they are even more important.

The CRS agriculture strategy focuses on community based watershed management to renovate areas plagued by chronic drought. Rehabilitation of water systems to increase access to water for human and productive use allows farmers to raise productivity.

Connections to markets translate into increased incomes, which can be reinvested into agriculture or other productive activities. Many farmers reinvest a portion of this income in non-farm activities to hedge against the unpredictability of the weather. Successful systems can link up to both informal and formal financing institutions, which allows farmers to develop their systems even further.

Due to the drying trends predicted for many areas, soil and water conservation are also important interventions. Tree planting, contour farming, various forms of terracing, bund construction and micro reservoirs and community dams all reduce erosion and enhance rainwater retention. These not only increase production and the availability of water, they help the soil and crops resist drought and reduce erosion.

Tree planting programs also serve to protect landscapes from erosion and create an alternative income stream. No CRS programs have yet expanded such programs to a level where they are able to sequester significant

amounts of carbon (and resulting in additional income to the communities from emerging carbon offset funds). Programs should investigate the potential for increasing programming in this area. (See the discussion of mitigation below.)

### **Agriculture Projects and Adaptation**

**India Watershed management:** In drought prone areas of India, CRS is working with local Church partners to design and co-develop large landscape level watershed engineering projects that include small dams, household clean water and household water harvesting for cleaning and garden farming. The projects are linked with the National Agricultural and Rural Development Bank, which provides low interest loans to Self Help Groups (SHG's) linked to watershed projects, which further assists the communities in being able to invest in productive agro-enterprise activities.

### **iii. Health**

Higher temperatures, changes in rainfall patterns and increases in natural disasters will affect human health. While there is a complex relationship between disease, environment, and people, and future impacts are hard to predict, the World Health Organization reports that these changes are already having the following effects on health:

- Increases in death and illness due to extreme and prolonged heat waves
- Increases in air pollution-related effects such as asthma are on the rise from increasing industrial emissions
- The reemergence and intensification of water and food borne diseases
- An expansion in the range and seasonal duration of vector borne diseases
- Food and water shortages are increasing malnutrition and complicating people's resistance to disease

A prime example is malaria. Already the third largest killer of children in the world, it is expanding its geographic range and the length of its season. In addition to increased human suffering, the growth in malaria will also affect people's ability to work and study.

Likewise, escalating natural disasters are bringing with them dramatic increases in water-borne diseases, especially cholera and diarrhea. Health systems in Europe and the United States are able to handle these diseases and others far better than those in developing countries. In countries where CRS works, health systems have far fewer resources at hand to deal with more illness and, in some cases, new diseases. Climate change is adding stress to systems which are already overloaded.

There is hope, however. The World Health Organization notes that “fortunately, much of the health risk is avoidable through existing health programmes and interventions. Concerted action to strengthen key features of health systems, and to promote healthy development choices, can enhance public health now as well as reduce vulnerability to future climate change.”

Unfortunately, there are no simple interventions in health to deal with these complex problems. For CRS, the best options are to help partners expand their surveillance of diseases to monitor increases in range, season or incidence. In addition, any intervention that increases the capacity of health system will make it more resilient to climate shocks, whether from natural disasters or the slow change in local climatic conditions. Continuing to build community based programs that are well integrated with formal health care institutions will increase the resilience of the whole system when the consequences of climate change become more severe.

#### **iv. Emergency Prevention, Preparedness, Protection, and Response**

The issues around emergency programming are some of the most challenging of all. Understanding how to respond requires deeper discussion of the complex consequences we should expect in the future.

##### ***What's Coming***

Natural disasters – especially floods, droughts, cyclones – have become more prolonged, more frequent, and less predictable. Over the past 20 years the number of recorded disasters has doubled. The vast majority of deaths from these disasters have been in developing countries where people are more vulnerable to disaster and where response systems are less robust. These disasters are undermining development efforts, as floods and droughts undo agricultural progress, and floods destroy clean

##### **Emergency Projects and Climate Change**

###### **India Community Based Disaster Preparedness:**

In Orissa State, CRS is building local capacities to respond to emergencies and mitigate the impacts of climate related hazards. Activities include strengthening self-help groups and organizing task forces which perform a variety of functions including delivering first aid, planning evacuation routes and safe shelters, protecting potable water sources, saving grain and cash in preparation for cyclone season, and facilitating the formulation of sustainable crop and land use plans. CRS also engages communities in small scale adaptation activities such as the repair and construction of water harvesting structures and embankments. Similar disaster risk reduction projects are ongoing in other parts of India and South Asia.

water sources. More frequent and more intense disasters compete with development programs for time and money as people attempt to adapt to changing climate.

Of particular concern are the growing numbers of people living in coastal areas. Rising sea levels and more severe storms are a deadly combination. For those with the means to evacuate ahead of time, these problems may be minimized. For the vast majority living in marginal areas with few resources including transportation, this combination is disastrous.

Human migration will increasingly be a problem, as communities uproot themselves in search of better land, more rain or simply more food. Competition for water and land are contributing factors in current conflicts in Darfur and the Middle East. This will not only slow development processes, but also increase conflict between communities over limited resources. So while climate change is producing an increase in natural disasters, it will also increase the likelihood of civil conflict in some areas as well. Most of these migrants will be internally displaced. Yet because in many ways climate change is a slowly unfolding disaster, the connection between migration and climate change may not be obvious or readily acknowledged. Protective services provided by humanitarian agencies during disasters such as cyclones or floods could be under stress trying to meet increasing needs sometimes in multiple regions simultaneously.

For those migrants who cross a border, they will not have the protection of refugee status, since they will not be fleeing war or the danger of persecution at home. For those who have left submerged islands, salinized coastal areas, or drought ravaged rural areas, the prospects of ever returning home are bleak. These situations pose serious challenges for a consistent and comprehensive humanitarian response.

### ***What to Do***

**Continue the commitment to disaster risk reduction.** The increased frequency and severity of natural disasters makes it more important than ever to work with communities and partners ahead of time to reduce risk through community based disaster preparedness programs. CRS and its partners support communities to plan and prepare for disasters by facilitating community-led asset and risk mapping, establishing task forces and providing training for early warning, search and rescue, basic first aid, evacuation teams responsible for identifying safe havens for people and assets (e.g., livestock), emergency assessment, coordination, distribution and protection. These “first responder” programs assist the community and reduce the threat to lives and livelihoods due to disasters and, through the mapping exercises, identify ways to lessen the impact of future disasters.

In many cases CRS and its partners can use their expertise in these areas to advocate with host governments to implement risk reduction programs. We can also demonstrate that human and natural resource solutions are as important as engineering solutions and usually much cheaper. For example, working with communities to preserve their mangrove forests in coastal areas not only protects them from storm surges, but also supports local fisheries by maintaining a healthy coastal ecosystem. Clearing out mangroves for jetties and breakwaters actually makes communities more vulnerable, not

less. Natural systems are remarkably resilient, and frequently more adaptable to the unpredictable changes in climate than engineering solutions.

**Help local partners understand longer-term scientific information**, such as rainfall predictions over the next several years, rather than just the next cropping cycle. This type of assistance can help local partners plan better. Because of our presence in so many poor communities around the world and our access to the best ideas emanating from developing countries, CRS can be a source of ideas—such as helping them spread the word from early warning systems via cell phones and other simple technologies—and enable local communities to better cope with a less predictable climate.

**Plan for increased civil conflict**, often in unpredictable situations. Conflict will likely come in the form of battles over scarce resources. Stresses brought on by environmental migrants on host communities may exacerbate ethnic or religious differences. Migrants may also further degrade local environments by stretching land beyond its carrying capacity. CRS' experience in peacebuilding will serve well to reduce and alleviate these conflicts. Peacebuilding programs should anticipate the dynamics of conflict over natural resources and be prepared to help communities work through them.

**Examine policies on protection** to make them valuable for the flows of climate migrants, most of whom will not cross a border and will not be fleeing a recognized civil conflict. Adaptation programming in these circumstances would ideally include assistance to both migrants and host communities to ease this process.

### **Assisting Rural Communities to Adapt to Climate Change in Burkina Faso**

The climate is changing in Africa – it is becoming more unpredictable. In 2007, southern Burkina Faso received too much rain – an average of almost 1 inch a day for over fifty days. The result was lost crops and collapsed houses that were constructed of mud.

Though affected families lost many assets – their houses, granaries, and crops – they still had their knowledge of shelter construction and crop production, strong social networks and access to markets for building materials and for seed. CRS responded by issuing vouchers to the most affected families and organizing first shelter and then seed fairs where they could exchange their vouchers for construction material and seed. This enabled a remarkably fast recovery and at the same time strengthened community cohesiveness and small businesses.

The CRS Seed Vouchers and Fairs enabled farmers to access seed of the crops and varieties that they prefer. In addition, they were able to purchase small packets of seed of new and potentially improved varieties from commercial seed enterprises who also participated at the fairs. In total an impressive 15,000 one-kilogram packets of seed of improved varieties were purchased. If all goes well, many of these new varieties will perform well and farmers will decide to retain them. Their crop systems will become more diverse and more resilient in the face of climate change.

## B. Mitigation Programming

Opportunities for CRS programming overseas to mitigate climate change are more limited than adaptation programs, but nevertheless important. Reforestation and afforestation programs have always been important to help conserve soil and water, but now are also valuable means of sequestering carbon. Increased forest cover not only has important global benefits, but may also contribute to local climatic benefits such as assisting in more stable rain patterns. There is the potential in the future for farmers to benefit from the carbon market here, but official certification in the UN or EU systems is a difficult process, so for the moment it is of limited interest to CRS. However, there is also an informal market for carbon credits which would be more accessible to CRS and its partners since it is far more manageable and easier to adapt to the small scale of most CRS programs. CRS should investigate forestry programs with communities which both generate income from the trees and qualify for informal carbon offset credits. These programs may employ techniques of agroforestry, permaculture, or woodlots, depending on local conditions and priorities.

CRS agriculture staff already have been discussing partnership with the World Agroforestry Center (ICRAF) in climate mitigation and adaptation. These discussions on specific activities have moved farthest in Kenya and Philippines where CRS and ICRAF partner in a Land Care Initiative. ICRAF would provide technical and policy support, and CRS and partners would do community outreach and scale up the program. The focus would be on carbon sequestration and carbon credits.

Other possibilities in mitigation are associated with CRS' work in helping communities cope with the problems of the oil and gas industry. In West Africa, for example, gas flaring produces more greenhouse gases than all other sources in Sub-Saharan Africa combined, according to the World Bank. Local communities oppose the practice due to the resulting pollution they experience. In addition to health benefits, reducing gas flaring would simultaneously have a strong mitigating impact on climate change.

### Agriculture and Mitigation

**Philippines Land Care:** This program is promoting both contour farming and erosion control through tree planting, particularly on steep slopes in the highland farming areas. The focus of this project is on parents and schoolchildren and the key issues being discussed are ways to avoid environmental hazards and global warming. The team has developed a color publication entitled Earth Care with 50 pages of illustrated Do's and Don'ts in environmental stewardship. The Landcare project has planted more than 19,000 trees at a relatively low cost. This type of project is a strong platform from which to build a new generation of projects based on carbon sequestration, erosion control and therefore drought mitigation.



## ***Opportunity 2: Education and engagement of the U.S. Catholic community from CRS' unique perspective***

The CRS constituency in the United States is becoming more aware of and concerned about climate change, but people often feel at a loss regarding what to do about it. As CRS becomes more engaged in the issue, the opportunity to provide people in the U.S. with the opportunity to live their faith by recognizing the links between their actions at home and the impact on others around the globe. The range of programs and relationships already developed through U.S. Operations are an unparalleled opportunity to draw the connections.

CRS' work in collaboration with other U.S. Catholic organizations offers many opportunities to deliver essential messages, including the following:

- a. Climate change is a moral issue that demands our action. While people in the US will suffer from the consequences of climate change, the people we serve overseas will suffer more, and yet have contributed the least to the problem and have not benefited from the industrialization we've enjoyed over the last century and a half. Care for the poor and acting for the common good are two principles of Catholic Social Teaching that obligate us to address this issue. Understanding the basic facts of climate change can help people understand this very complex issue. Linking it to Catholic values of prudent action, the common good and a priority concern for the poor can help Catholics see how it is part of their faith.
- b. Climate change is a global relief and development issue. CRS' emergency and development programs are already being affected by climate change, and will be increasingly affected in the future. The quality of our programs depends on being able to respond appropriately to the growing reality of climate change.
- c. Climate change is unquestionably a global solidarity issue. Climate change paints in stark relief that what people do in the United States affects people far away. Education programs in the U.S. must be designed to help Catholics make that connection, and see themselves truly as part of one human family sharing –and caring for-- God's creation and the poor.
- d. There are things US Catholics can do to contribute to climate change solutions. Education programs can show people what they can do to
  - encourage prayer and thoughtful consideration of the links between care of creation and current lifestyle choices
  - reduce their carbon footprint at home/parish/work
  - educate others
  - advocate with legislators, policy makers, business leaders
  - donate to programs to mitigate our contribution to climate change, and that help people overseas to adapt to its unavoidable consequences.

In addition to including these messages in its existing education programs, CRS has another important opportunity. The Catholic Coalition on Climate Change is developing a campaign

entitled “A Catholic Covenant – St. Francis Partnership to Protect Creation and the Poor,” which will provide numerous opportunities to educate people and bring a Catholic perspective to these issues. CRS is a member of the Coalition’s steering committee and can help frame the Covenant to include strong international educational components and promote it to our US partners and constituents.

### ***Opportunity 3: Advocacy with policy makers***

As an organization with a presence both overseas and in the United States, CRS is in an excellent position to advocate for the poor and the vulnerable around the world and influence the US Government. In cooperation with the USCCB, the Catholic Coalition on Climate Change, and the National Religious Partnership for the Environment, the moral position of the Catholic Church can (and indeed has) influence the directions of US legislation and US positions in official climate change talks.

Working with PVO networks can open up other avenues for multiplying CRS’ influence. Of particular interest is the growing convergence between environmental and human development organizations as both movements find common ground in the need to protect human welfare by paying more careful attention to the environment and promoting environmental justice. Staff should continue to monitor these networks for opportunities to multiply our influence when appropriate.

There are numerous advocacy issues related to climate change where CRS’ mission and overseas presence offer an invaluable perspective and give legitimacy to our voice. Given the long term nature of the underlying causes of climate change, specific advocacy agendas are likely to evolve over time. That said, current policy issues on which CRS can and should participate include the following:

- **Adaptation Funding**
- **Regulating Carbon Emissions**
- **Biofuels, Food Security and Carbon Emissions**
- **International Agreements on Climate Change**

#### **A. Adaptation Funding**

CRS should continue to collaborate with the USCCB in working with Congress to ensure that legislation to address the climate change protects the poor and vulnerable. This includes ensuring that increased funding to help communities adapt the impacts of climate change is made available without reducing current levels of development assistance.

The USCCB along with its interfaith and Catholic partners, including the National Religious Partnership for the Environment (NRPE) and the Catholic Coalition on Climate Change (CCCC), have laid significant groundwork in the Senate in 2008 for future climate legislation. Although climate legislation did not ultimately pass the Senate in 2008, the Bishops’ Conference and its partners worked to ensure that the introduced legislation

included provisions which set aside funding to protect poor and vulnerable people in the U.S. and abroad.

Some estimates of the cost of adaptation are in excess of \$80 billion per year. Such numbers will require considerable commitment on the part of the US and a sustained push by CRS, other relief and development organizations and the faith community at large. CRS can play a role in this advocacy effort by showing how such funding can be handled wisely, how climate change is having an impact on communities already, and that CRS and similar agencies are well placed to implement relief and development programs.

While effective development and adaptation funding use the same principles and pursue similar goals, simply changing the name of existing development assistance to “adaptation funding” will not be sufficient. The \$80 billion per year figure cited above is in addition to what was already required in relief and development assistance. To try to cover the needs of adaptation from the already inadequate amounts budgeted for development assistance will leave many people in increased need and ever more difficult circumstances.

The unique role of CRS here is to channel the voices of partners and communities overseas to policy makers in the United States. In concert with the USCCB this is a valuable role that CRS can play in bringing perspectives of CRS partners to bear on what are often seen as purely domestic issues. Although CRS does not speak *for* partners in other countries, rather we can and should speak *with* them in a coordinated way in which partners have a key role in crafting the messages. A joint advocacy role here would be far stronger than uncoordinated efforts.

## **B. Regulating Carbon Emissions**

To generate resources on this scale, CRS should continue to advocate in Congress for directing a portion of the revenue from any carbon tax or cap and trade auction program to adaptation programs for the poor, both in the US and overseas. Each of these approaches is outlined below.

**The cap and trade approach** is the more likely vehicle that Congress will eventually pass. In general, there is more certainty that a cap and trade program will better meet emissions targets. But vigilance to the ultimate shape of the program is necessary to ensure that it generates public funds for various purposes, including overseas adaptation.

This program sets limits on the amount of greenhouse gas emissions industries are allowed. At least a portion of these “permits” should be auctioned and thereby generate revenue for the federal government. Depending on the percentage of permits auctioned, the potential revenue could be in the billions of dollars. So devoting even 5-10% of it to adaptation would be a serious commitment by the US to poor communities around the world. Cap and trade emissions programs have been tried in the European Union for carbon and in the US for other pollutants. These programs have experienced some initial difficulties in setting practical procedures and require close regulation. Yet some form of

emissions trading is important for reducing overall emissions, especially if the caps (i.e., the number of or cost of permits) are brought down at an adequate pace over time.

One of the main difficulties with emissions trading is the position it leaves communities in faced by local polluting industries. Traditional forms of environmental regulation require all industries to comply with fixed standards. With emissions trading systems, an individual power plant, smelter or factory may conclude that it is cheaper to buy pollution permits than to clean up the operation. If this is done under a cap and trade system, the overall level of pollutants decline, but the damage to the surrounding community in terms of health problems continues unabated. The environmental injustice of this situation makes many wary of relying simply on economic incentives to deal with a multifaceted problem.

There are other potential sources of adaptation funding. NGOs might participate in current and newly-forming climate change funds such as those managed by the Global Environment Facility, the World Bank, and other agencies. CRS should monitor these processes in order to increase the chances that these funds actually reach the poor and do not disappear in large public bureaucracies. The Global Environment Facility already has a focal area devoted to climate adaptation that CRS partners are able to get funding from. The Global Environment Facility Small Grants Program is of particular interest to CRS partners for grants up to \$50,000.

**The carbon tax approach** generally will ensure greater income for public purposes even if it has less certain emission reductions. Under a carbon tax the polluter (those who burn fossil fuels including transportation, electricity use, heating and cooling, etc.) pays directly for the emissions, creating an incentive to reduce emissions and generating revenue to pay for the true costs of the pollution. Like all taxes, carbon taxes have been less politically popular. It should be noted that a cap and trade approach is also a tax, but less direct.

While the U.S. Bishops have not taken a position on one approach or the other, they clearly believe that, 1) climate change is real, 2) it requires a response, 3) legislation aimed to reduce emissions will be costly and those costs should not be borne by the least among us; 4) the poor must have first claim on the revenue generated by climate legislation.

### **C. Biofuels, Food Security and Carbon Emissions**

The need to reduce the burning of fossil fuels makes development of renewable energy sources essential. One of the most important alternatives is biofuels. The advantage of biofuels over fossil fuels is that plants remove carbon dioxide from the atmosphere as they are growing, while fossil fuels release carbon dioxide to the atmosphere which has been buried in the earth for millions of years.

As a result of US and EU subsidies, the market in biofuels has exploded in recent years. This development has important implications for food security in many of the places CRS works. On the one hand, for net food producers the biofuel market can be an excellent economic opportunity. In addition, production of biofuels from crop residues or non-food crops may

present new economic opportunities for farmers in CRS programs. On the other hand, demand for food crops for biofuels has contributed to the current global food crisis by driving up prices. Since 2002, the use of food grains for production of ethanol in the US and EU has driven up prices of food worldwide and increased hardship for the poor. Estimates of the contribution of biofuels to this price rise range from 2-3% according to the US Department of Agriculture up to 70-75% according to World Bank economist Donald Mitchell. Whatever the actual figure, the spike in food prices has led to civil disturbances in a number of countries and increasing hardship for those who are net consumers of food.

There are currently two main types of biofuels relevant here: ethanol and biodiesel. Ethanol is produced from plants high in sugar (such as sugar cane) or starch (especially corn), while biodiesel is produced from oilseeds (usually oil palm, soybean, algae, or jatropha). In practice, however, the costs and benefits of biofuels are not as clear. The amount of energy required to produce biofuels varies with the crop and the technology.

Current approaches to biofuels raise a number of issues of concern for the CRS constituency overseas:

- a. Demand for biofuels has promoted land use changes, reducing land area planted with food crops to expand acreage for the biofuels market
- b. Not all biofuels are carbon positive, that is, some produce more carbon dioxide than they save. Corn is especially suspect here, since large quantities of fossil fuels are used in growing it and processing it into fuel. Sugar cane is 7-8 times more efficient in terms of energy production, and thus is far more attractive as an alternative to fossil fuels..
- c. Increased acreage for biofuel crops jeopardize forests and wetlands, as well as bringing more marginal cropland into production. Demand by large agriculture companies for land has often means the displacement of poor populations and the destruction of the environment. For example, sugar farming for ethanol in Brazil threatens to encroach on the Atlantic Rainforest and the Cerrado—critical biodiversity reserve areas—as well as on the Amazon Basin. While biofuels from sugar cane can reduce carbon emissions, the rampant destruction of tropical forest land causes even greater problems. A hectare farm grows enough sugar cane to save 13 metric tons of carbon dioxide emissions a year, according to a 2005 WWF study, whereas a natural forest regenerated on the same hectare would absorb 20 metric tons per year. African palm oil plantations in the Andean region of South America and Southeast Asia for palm oil and now biodiesel have been major factors in forest destruction and displacement of people.
- d. Expansion of commercial monocropping is energy intensive, requiring considerable inputs of fossil fuel based inputs, generating significant nitrous oxide emissions. Since nitrous oxide is one of the three main greenhouse gases, expansion of this form of agriculture has a profound effect on the climate beyond the forest destroyed and the fossil fuel inputs used.

So there are trade-offs in the promotion of biofuels that must be examined closely in each case. From an advocacy point of view, CRS should oppose continued subsidies in the US for

biofuel from corn because of its effects on food prices. However, other biofuel programs may be worthy of support if 1) they produce more energy than they consume, 2) they result in a net reduction in carbon emissions, and 3) there are restrictions in place to prevent displacement of the poor and the destructive results of industrial monocropping. CRS programs overseas should also consider the economic opportunities for farmers of the biofuel market.

#### **D. International Agreements on Climate Change**

The lack of US leadership on climate change—beginning with its failure to ratify the Kyoto Protocol to the 1992 UN Framework Convention on Climate Change—is a significant factor holding back global consensus and concerted action. As the overseas relief and development arm of the U.S. Catholic Church, CRS can very likely contribute as much or more to alleviate the impact of climate change on poor communities overseas by influencing the US government to strengthen its leadership and cooperation with other nations as it can through direct program assistance.

One avenue for doing so is the CIDSE/Caritas Internationalis Poverty and Climate Campaign which seeks to shape the agenda of the next phase of talks and the agreements that will come into force when the Kyoto Protocol to the Convention expires in 2012. The planning process for what will happen after 2012 has begun, and will be decided in Copenhagen in December 2009. CRS, in coordination with the USCCB, could play an important role by encouraging the U.S. Government to commit to a) meaningful reductions in emissions and b) ensuring the availability of adaptation funding for those most affected at home and abroad. CRS should seek to coordinate its education and advocacy efforts related to international agreements with the CI/CIDSE campaign, especially with other members of Caritas North America.

#### **E. Other Advocacy Issues**

There are a number of other issues not considered here that most advocates agree on as important to mitigating climate change. Increasing energy efficiency, promoting all forms of renewable energy, increasing the Corporate Average Fuel Economy (CAFE) standards on cars sold, developing alternative transportation fuels and many others are important to meeting this looming crisis. However, CRS has no particular comparative advantage in any of these areas, and should leave these issues to others whose organizational mission and expertise lie squarely within those parameters.

### ***Opportunity 4: Reducing CRS' Carbon Footprint***

#### **A. Agency Operations**

CRS has already made important strides in reducing its own carbon footprint. There is an active committee of U.S. based staff examining various aspects of how to reduce emissions and waste. The World Headquarters building is acquiring at least silver LEED certification (Leadership in Energy and Environmental Design of the US Green Building Council), and a

few changes could increase that rating to gold. Further improvements in recycling and purchasing, use of renewable energy, increased use of video conferencing and other changes can all reduce CRS' contribution to climate change.

For a large capital investment such as solar power, if the initial capital costs are prohibitive, CRS should consider a Power Purchase Agreement (PPA). Under a PPA, a company finances, installs and maintains a system on the CRS building and sells power to CRS. Such a system has the advantage of reducing CRS' carbon footprint and stabilizing energy costs in the future while reducing up front costs. These changes to lower the CRS carbon footprint are a case where money spent at home actually helps the CRS constituency overseas by mitigating climate change.

This effort should be expanded to overseas offices, which should survey their own carbon footprints and encourage staff to use their creativity to reduce them. The means to do so will vary by country and program, and giving staff the freedom to use their imaginations is the best way to tap into local resources and ideas. Some overseas offices have already begun these efforts, and headquarters should support them.

Reducing CRS' carbon footprint would a) make a tangible contribution to mitigating climate change, b) increase CRS' credibility to advocate the changes we want others to make, and c) demonstrate that changing behavior is possible.

## **B. Carbon Offsets**

Under the Kyoto Protocol, there is a carbon offset market whereby greenhouse gas emissions can be offset by supporting other projects in renewable energy, forestry, or sustainable transportation. The Clean Development Mechanism (CDM) allows institutions to buy emission reductions – “Certified Emission Reductions,” or CER-- rather than reducing emissions themselves. This mechanism has been fraught with problems, both conceptual and practical. And the process of certifying the offset is complicated. Consequently, CRS would be wise to avoid the official carbon offset market.

However, there is also a large and growing informal market in carbon offsets which is more manageable. CRS should investigate an internal carbon offset mechanism, in which programs “pay” for their emissions by supporting initiatives which mitigate climate change, such as forestry programs. Programs would calculate their carbon footprint – from travel, office expenses, energy consumption, etc. There are many online calculators that can help do this (such as [www.epa.gov/climatechange/emissions/ind\\_calculator.html](http://www.epa.gov/climatechange/emissions/ind_calculator.html) or [www.carbonfund.org](http://www.carbonfund.org)). Programs then assign a portion of their budget to a specified mitigation fund at the going rate, which currently ranges from about \$5 to \$30 per ton of carbon emitted. Programs could offset 100% of their emissions or a lower percentage, depending on the cost. These funds would then support mitigation expenses, such as forestry programs, installation of solar panels either at the office or in communities, or any other program that reduces carbon emissions.

Alternatively, CRS could investigate a “Catholic offset” program that would be open to the wider Catholic community, in which CRS could provide the projects needed to offset carbon. The mechanism would be the same except that external participants would make contributions to the fund and CRS would channel them to mitigation projects. A set of web pages can be set up with a calculator, descriptions of typical projects, and a donate button. There are many NGOs and businesses with considerable experience in this area which can help design it, help set costs, and determine how much mitigation is provided by a variety of activities.

Any carbon offset program needs to come with a clear educational message that offsets are not a substitute for reducing greenhouse gas emissions, whether by an individual or organization. Offsets can be an interim tool, but they do not justify continuing to pollute at existing levels. Both emissions reduction and offsetting are necessary to get to the levels necessary to avoid the worst consequences of climate change.



## **Annex I - People Interviewed**

### **CRS Staff**

Annemarie Reilly - Chief of Staff  
Bill O'Keefe - Senior Director, Advocacy  
Joan F. Neal - Executive Vice President, US Operations  
Jim DeHarpporte - Regional Director, CRS/West  
Madeleine Philbin -Regional Director, CRS/Midwest  
Dorothy Grillo - Regional Director, CRS/Southeast  
Brian Backe - Director, Domestic Programs Support Unit  
Tom Ulrich - Director, Constituency Relations Support Unit  
Pamela K. Anderson – Acting Director, Quality Assurance, US Operations-- Special Assistant  
Carol Bobick - Executive Assistant, US Operations  
Arlene Flaherty OP - Justice and Peace Partnership Liaison, CRS/Northeast  
Jennifer Overton - Deputy Director, Program Quality & Support Dept.  
Shaun Ferris - Senior Technical Advisor, Agriculture, Program Quality & Support Dept.  
Dennis Warner - Senior Technical Advisor, Water Resources, Program Quality & Support  
Amy Hilleboe - Senior Technical Advisor, Disaster Risk Reduction, Emergency Operations  
Christopher Varady - Program Manager II, CRS/Lebanon  
Tom Remington - Principal Technical Advisor, Agriculture, West Africa  
Daisy Francis - Protection Policy/Issues Advisor, Emergency Operations Department  
Jennifer Swope - Program Advisor, Domestic Programs Support Unit  
Jackie DeCarlo - Senior Program Advisor, Economic Justice, Domestic Programs Support  
Kevin Kostic – Senior Program Advisor, Justice Education, Domestic Programs Support  
Brendan Cavanaugh - Program Specialist, Advocacy Dept.  
Sean Cassidy - Deputy Director, Advocacy Dept.  
Lisa Kuennen-Asfaw – Director, Public Resource Unit, Overseas Support Dept.  
Bruce White –Food Security Advisor, Public Resource Unit, Overseas Support Dept.  
Paul Miller - Senior Team Leader, Africa, Overseas Support Dept.  
Mary DeLorey – Migration Issues Advisor, Overseas Support Dept.  
Mary Hennigan - Senior Technical Advisor, Health, Program Quality & Support Dept.

### **Staff from other organizations**

Walt Grazer, National Religious Partnership for the Environment  
Dan Misleh - Executive Director, Catholic Coalition on Climate Change  
Cecilia Calvo - Coordinator, Environmental Justice, US Conference of Catholic Bishops  
Kathy Brown, Senior Director for Mission, Catholic Charities USA  
Patrick McCully, Executive Director, International Rivers  
Ben Campbell - Director, Faith Based Initiatives, Conservation International  
David Waskow – Climate Change Program Director, Oxfam America  
Sarene Marshall, Director of Forest Carbon Partnership, The Nature Conservancy

## Annex II – Bibliography

Adger, W.N., S. Agrawala, M.M.Q. Mirza, C. Conde, K. O'Brien, J. Pulhin, R. Pulwarty, B. Smit and K. Takahashi, 2007: Assessment of adaptation practices, options, constraints and capacity. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 717-743.

Brown, Oli, *Climate Change and Forced Migration: Observations, projections and implications*, United Nations Development Program, [http://hdr.undp.org/en/reports/global/hdr2007-2008/papers/brown\\_oli.pdf](http://hdr.undp.org/en/reports/global/hdr2007-2008/papers/brown_oli.pdf), 2007.

Budden, Provash, "Overseas Office Environmental Awareness," CRS/Aceh, 2008

Burpee, Gaye, "Responding to Climate Change," January 2008, CRS/LACRO

California Environmental Associates, *Design to Win: Philanthropy's Role in the Fight Against Global Warming*, [http://www.ceiconsulting.com/pdf/DesignToWin\\_FinalReport.pdf](http://www.ceiconsulting.com/pdf/DesignToWin_FinalReport.pdf)

CAFOD, CAFOD Climate Change Policy, <http://www.cafod.org.uk/policy-papers/climate/panels/resources-to-download/cafod-climate-change-policy>, July 25, 2008.

CIDSE and Caritas Internationalis, "The CIDSE-Caritas Internationalis Poverty and Climate Change Campaign Internal Position Paper," July 2008

Conservation International, *Harnessing Nature as a Solution to Climate Change: Conservation International's Climate Change Business Plan Executive Summary*, [www.conservation.org/Documents/CI\\_climateChange\\_bizPlan.pdf](http://www.conservation.org/Documents/CI_climateChange_bizPlan.pdf), April 2008.

Ehrhart, Charle, Thow, Andrew, de Blois, Mark and Warhurst, Alyson, *Humanitarian Implications of Climate Change: Mapping emerging trends and risk hot spots*, [www.care.org/newsroom/articles/2008/08/climatechange\\_report.pdf](http://www.care.org/newsroom/articles/2008/08/climatechange_report.pdf), August 2008

Catholic Relief Services, "CRS Climate Change Briefing Note"

Garvey, Niamh, Trócaire, *Tackling Climate Injustice: Towards an Equitable Response to a Global Crisis*, March 2008.

International Panel on Climate Change, *Climate Change 2007: Synthesis Report: Summary for Policymakers*, November 2007, [http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4\\_syr\\_spm.pdf](http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf).

McGray, Heather, Hammill, Anne, and Bradley, Rob, *Weathering the Storm: Options for Framing Adaptation and Development*, World Resources Institute, 2007.

The National Religious Partnership for the Environment, *A Religious Agenda on Poverty and Global Climate Change*

The Nature Conservancy, *Resilient Nature, Resilient People*,  
[www.nature.org/initiatives/climatechange/files/adaptaion\\_brochure.pdf](http://www.nature.org/initiatives/climatechange/files/adaptaion_brochure.pdf)

Pottinger, Lori, "Bad Deal for the Planet: Why Carbon Offsets Aren't Working...And How to Create a Fair Global Climate Accord," *Dams, Rivers and People Report 2008*, International Rivers, Berkeley, CA, [http://internationalrivers.org/files/DRP2English2008-521\\_0.pdf](http://internationalrivers.org/files/DRP2English2008-521_0.pdf)

Stern, et al, *Stern Review: The Economics of Climate Change*, [www.hm-treasury.gov.uk/media/9/9/CLOSED\\_SHORT\\_executive\\_summary.pdf](http://www.hm-treasury.gov.uk/media/9/9/CLOSED_SHORT_executive_summary.pdf).

Wenski, Bishop Thomas, Chairman of the Committee on International Justice and Peace, United States Conference of Catholic Bishops, "Statement for Briefing on Moral Dimensions of Climate Change," May 21, 2008.

The William and Flora Hewlett Foundation, *Taking Action on Climate Change*,  
[www.hewlett.org/NR/rdonlyres/BBA58FBC-9C58-449F-83D3-9BC4162758A7/0/3903Hewlett\\_ClimateBook\\_final\\_sprds.pdf](http://www.hewlett.org/NR/rdonlyres/BBA58FBC-9C58-449F-83D3-9BC4162758A7/0/3903Hewlett_ClimateBook_final_sprds.pdf)

Varady, Christopher J., "Potential Program Idea: NGO Carbon Off-Setting Program," CRS/Lebanon, July 9, 2007

United Nations Development Programme, *Fighting Climate Change: Human Solidarity in a Divided World*, 2007, [http://hdr.undp.org/en/media/HDR\\_20072008\\_EN\\_Complete.pdf](http://hdr.undp.org/en/media/HDR_20072008_EN_Complete.pdf)

United States Conference of Catholic Bishops, *Global Climate Change: A Plea for Dialogue, Prudence, and the Common Good*, June 15, 2001,  
<http://www.usccb.org/sdwp/international/globalclimate.shtml>

United States Conference of Catholic Bishops, *Renewing the Earth: An Invitation to Reflection and Action on Environment in Light of Catholic Social Teaching*, A Pastoral Statement of the United States Catholic Conference, November 14, 1991,  
<http://www.usccb.org/sdwp/ejp/bishopsstatement.shtml>