

**HUMAN RIGHTS COUNCIL RESOLUTION 7/23
"HUMAN RIGHTS AND CLIMATE CHANGE"**

**Submission of the Maldives to the
Office of the UN High Commissioner for Human Rights**

25th September 2008

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FOREWORD

By H.E Mr. Abdulla Shahid, Minister of Foreign Affairs of the Republic of Maldives

The Maldives Government has continually reiterated that, until recently, there has been a fundamental imbalance between the attention devoted to the scientific parameters of climate change, and the attention devoted to its human costs.

We believe that this weakness in the international discourse on environmental degradation is a key contributing factor behind the world's collective failure to effectively tackle the problem.

The Office of the High Commissioner for Human Rights (OHCHR) study into the relationship between human rights and climate change, called for by Human Rights Council Resolution 7/23, will be very significant in terms of redressing this imbalance. By showing definitively that climate change results in the direct and indirect violation of a wide-range of human rights, the study will help to bring the individual human face of the problem into sharper focus. This in-turn will, we believe, increase the moral and ethical imperative for world governments to act.

The Maldives Government's submission provides incontestable proof that climate change is already affecting the lives, livelihoods and rights of people across our island nation. Moreover, while our analysis is based on the experience of the Maldives and of Maldivians, it is clear that the findings are equally applicable to many other vulnerable countries around the world – countries that bear almost no responsibility for the problem that threatens to consume them.

This study is an important step that has the potential to help us reach our goal of a global climate policy based on intergenerational solidarity and sustainable development.

As the human consequences of climate change become more and more apparent, we look forward to working with our friends both inside and outside the Human Rights Council to explore how a rights-based approach to climate change can best contribute to moving the world from a stance of inaction to one premised on the universality and inviolability of the rights and freedoms with which we are all endowed.

EXECUTIVE SUMMARY

The recently adopted Human Rights Council Resolution 7/23 and the requested study by the Office of the High Commissioner for Human Rights (OHCHR) on the link between human rights and climate change are an extension of long-standing international concern about the impacts of environmental harm on human rights. Climate change has significant, and at times disastrous, effects on human populations, and these impacts are expected to increase in frequency and intensity. The Republic of the Maldives, which consists of approximately 1,200 low-lying islands, is a State experiencing such severe impacts.

As a Small Island State, the Maldives is especially vulnerable to climate change impacts. These impacts include: (1) sea-level rise causing permanent inundation and flooding, sea-level surges, and erosion; (2) increases in sea and surface temperatures causing changes to island and marine ecosystems; (3) increases in the intensity of extreme weather events, such as severe storms and cyclones causing high waves, winds, and sea surges; (4) changes in precipitation, which can exacerbate the effects of sea-level rise; and (5) increases in sea temperature causing damage to coral reefs and other aquatic life.

These physical impacts in-turn have deep and far-reaching implications for human lives and livelihoods in the Maldives. For example, sea-level rise causes salination of the Maldives' shallow freshwater aquifer, affects tourism and destroys homes. Rising sea-levels also destroy rainwater storage tanks and sanitation systems, causing the latter to leak human waste, and contaminating the groundwater. Furthermore, climate change impacts such as more frequent sea-swells and surges result in the salination of arable land and also damage or destroy infrastructure. As displaced people find temporary shelter among populations on unaffected islands, there is a greater risk of transmission of disease to the unexposed populations. This risk is particularly acute on small islands, where sanitation and other facilities may already be strained by the necessity of providing services for the original population. Schools, if not damaged by the direct impacts of sea-level rise or extreme weather events, have to cope with the sudden influx of displaced students, which can at times, overburden the capacity of a school to provide educational services.

Higher temperatures are conducive to the transmission of scrub typhus, diarrhoeal diseases, and dengue fever, malaria and other mosquito-borne diseases. It is also already a fact of life in the Maldives that healthy coral reefs are dying as a result of higher ocean temperatures, which, among other things, will disrupt the habitat and reproductive cycles of non-migratory fish species and live bait species used for fishing. This will have huge knock-on effects in a country where most people are dependent on fishing or tourism for their livelihoods.

The impacts of climate change have important implications for the human rights recognized in international human rights instruments, including the Universal Declaration of Human Rights (UDHR) as codified in the International Covenant on Civil and Political Rights (ICCPR) and the International Covenant on Economic, Social, and Political Rights (ICESCR), as well as the Convention on the Rights of the Child (CRC) and the Convention on the Elimination of All forms of Discrimination Against Women (CEDAW). Under these Treaties, the State has the primary duty not only to respect the covered rights, but to protect and fulfil these rights through positive action. All Parties to international human rights conventions are obligated to take measures to prevent the violation of climate change-affected rights.

While much of the body of international human rights law is directed toward the protection of the individual, international human rights conventions also recognize the rights of a people collectively. Such collective rights cannot, by their nature, be enjoyed by an individual without the participation of the larger group. Climate change, because of the severity and global scope of its impacts, threatens the collective rights of the Maldivian people in a manner unprecedented by any other environmental harm.

The right of all peoples to self-determination is recognized in Article 1 of both the ICCPR and the ICESCR, and in Articles 1 and 55 of the UN Charter. If climate change continues unmitigated, sea-level rise is expected to result in the total inundation of the Maldives. Climate change may thus destroy one of the hallmarks of statehood: the country's territory. Additionally, the combination of sea-level rise, rising temperatures, and extreme weather events threatens to render the islands uninhabitable at even partial levels of flooding. Therefore, climate change impacts constitute a threat to the enjoyment of the right of the Maldives' people to self-determination.

Implications of climate change for individual human rights include civil and political rights (such as the right to life) as well as economic, social, and cultural rights (such as the right to property, the right to food, the right to housing, the right to health, the right to water, and the right to work). The Maldives is undertaking a wide-range of measures to protect and ensure the rights threatened by climate change, in accordance with its obligations under the universal human rights covenants and other human rights treaties to which it is a Party. This progress is seriously undermined by climate change and its consequences. Moreover, climate change also implicates procedural rights, including access to information, participation in decision-making, and access to justice, particularly in the context of the Governments' efforts to mitigate or adapt to climate change.

The need for and the costs of adaptation projects – a consequence of the global climate changes caused by emitters of greenhouse gases (GHGs) outside of the Maldives' borders -- will only increase if emissions are not reduced or stabilized. In order to ensure that the rights and freedoms of the people of the Maldives are protected and fulfilled in accordance with the UN

Charter and the Universal Declaration on Human Rights as well as other human rights instruments, the international community has the duty both to ensure that GHGs are reduced or stabilized, as well as to provide funding for adaptation. In the Maldives, the implementation of adaptation measures has indeed been made possible with the support of the international community. However, such measures will only realistically cover a tiny fraction of the needs of the Maldives. Ultimately, therefore, only international cooperation to stabilize GHG emissions at scientifically agreed-upon safe levels can prevent the most catastrophic climate change impacts. *The Maldives on its own is incapable of preventing the violations of fundamental human rights that are already taking place as a result of climate change – violations which will occur on a scale of increasing magnitude should the most likely climate change scenarios be realised.*

Under human rights law, the international community has several duties to fulfil. First, the Human Rights Committee (HRC) in its General Comment on self-determination confirmed that States should refrain from interfering in the internal affairs of other States in a way that adversely affects the exercise of the right to self-determination. While the HRC did not perhaps explicitly contemplate interference in the manner imposed by climate change, catastrophic climate change would nevertheless cause the denial of the right to self-determination of the Maldives people. Accordingly, States individually and collectively must refrain from emitting GHGs at levels that adversely affect the rights of Small Island peoples to self-determination. This would suggest that an international climate change agreement that fails to attain GHG reductions and stabilization at anything less than scientifically-agreed safe levels would be incompatible with international human rights law and obligations under the UN Charter.

Furthermore, Article 2 of the ICCPR imposes an obligation on the international community to take positive action toward the realisation of the right of self-determination, regardless of whether a people are located within the territory or jurisdiction of a particular State. This is suggestive of a positive obligation upon industrialised countries to protect the sovereignty of Small Island States by taking meaningful action to cut greenhouse gases before such States are rendered uninhabitable.

In addition to States' duties to respect the right of self-determination, Article 2(1) of the ICCPR requires each State to respect and ensure the other ICCPR rights with respect to individuals outside its own territory, if they are within its "power or effective control." If global warming displaces affected individuals from their own land, causing them to lose control over their own lives, it would subject them to the effective control of others, including the State or States contributing to the warming. As a consequence, residents of the Maldives, or other islands and low-lying areas that become uninhabitable as a result of sea-level rise would be at the mercy of the larger, more powerful countries that have caused or are causing the harm. In this situation (at least), the other obligations of those countries under the ICCPR, including the duty to respect and ensure the right to life, would extend to the Maldives' residents.

The ICESCR includes an explicit provision addressing the role of the international community in promoting the fulfilment of economic, social, and cultural rights. Article 2 of the ICESCR requires each State Party “to take steps, individually and through international assistance and co-operation, especially economic and technical, to the maximum of its available resources, with a view to achieving progressively the full realization of the rights recognized in the present Covenant by all appropriate means”. Article 23 of the ICESCR elaborates on this requirement, stating that international action includes “the conclusion of conventions, the adoption of recommendations, the furnishing of technical assistance” and other methods.

The obligations of all State Parties to respect and protect rights, and to facilitate or provide access to resources necessary to ensure rights, apply equally to the threats posed by climate change to rights under the ICESCR. Climate change, because of its trans-boundary nature and the acute threat it poses to economic, social, and cultural rights among vulnerable populations, is an issue that implicates the responsibility of all State Parties to cooperate. In light of the ICESCR’s text and the guidance of the Committee on Economic, Social and Cultural Rights, it is clear that Parties have several types of international duty with respect to climate change.

First, States are required to limit emissions within their jurisdiction to levels such that climate change impacts do not interfere with the enjoyment of the rights of vulnerable populations. This would indicate that only a climate change agreement that reduces GHG emissions to scientifically-agreed safe levels would be compatible with the obligations of State Parties under the ICESCR. Second, for the same reasons, State Parties have the obligation to ensure that they effectively implement their obligations under existing climate change agreements. Third, State Parties should facilitate or, wherever possible, provide access to aid for climate adaptation measures that are essential to the fulfilment of fundamental economic, social, and cultural rights.

The international community must take into account international human rights obligations in the course of negotiations addressing climate change. The outcome of the UNFCCC negotiation process should ensure that the right of Small Island peoples to self-determination will not be violated by climate change impacts. Further, States must give due attention to threatened economic, social, and cultural rights in the course of negotiation of the international climate change conventions. This attention is not just a moral obligation. It is a legal duty arising from the ICESCR and other human rights treaties.

The emergence of customary norms of human rights law has direct implications for the obligations of the international community to avert climate change and address its impacts. The fact that human rights norms are recognized in customary international law not only has legal implications but also translates into a shared moral ground for the international community, which finds in this body of law inspiration and guidance for cooperating toward an international order where these rights may be fully realized. In this sense, all States are required to ensure that activities under their jurisdiction or control do not result in violations of the rights recognized in

customary human rights law. In other words, customary law emphasizes the protection of human dignity, without limitations based on nationality.

The UNFCCC and the Kyoto Protocol set out a good preliminary framework for cooperation as a basis for protecting and ensuring human rights. Unfortunately, however, the implementation of the obligations has lagged behind, both in terms of GHG reduction commitments as well as funding and technology transfer. No adequate mechanism has so far been put in place to ensure funding for the adaptation projects necessary for ensuring and protecting the human rights of the Maldives' people or of other vulnerable communities. Similarly, the obligations to transfer necessary mitigation or adaptation technologies to developing countries have not been operationalised. These shortfalls all point to potential violations of human rights obligations under various human rights instruments. The ongoing climate negotiations provide the opportunity for members of the international community to remedy this situation, and to show that they take their human rights obligations seriously.

Consequently, the international community must take into account international human rights obligations in the course of negotiations addressing climate change. The outcome of the UNFCCC negotiation process should ensure that the right of Small Island peoples to self-determination will not be violated by climate change impacts. Further, States must give due attention to threatened economic, social, and cultural rights in the course of negotiation of the international climate change conventions. This attention is not just a moral obligation. It is a legal duty arising from the ICESCR and other human rights law.

The incontestable conclusion that climate change undermines and results in the widespread violation of human rights in the Maldives and in all other vulnerable countries around the world; and the related fact that the global character of the problem makes it impossible for individual States like the Maldives to promote and protect threatened rights on their own; in-turn raises the question of what actions the international community should take to respond.

It is clear that any solution to climate change must be based on an effective and meaningful multilateral agreement reached through the UNFCCC negotiation process. It is equally clear that for those negotiations to reach a successful conclusion in Copenhagen in late 2009, world governments must fully understand the current and projected impacts of climate change on people and communities around the world. Human rights discourse offers an ideal lens through which to focus the attention of the international community on these human impacts. The challenge facing both the human rights community and the climate change community is therefore how best to integrate human rights considerations and thinking into multilateral climate change negotiations in a manner which complements and reinforces those negotiations; and, at the same time, to integrate climate change considerations into international human rights discourse in a manner that takes sufficient account of the major implications of global warming for the full enjoyment of human rights.

There are a number of options open to the international community to address these dual challenges.

In terms of integrating human rights considerations into the Bali process of climate change negotiations, UN Member States, through Human Rights Council Resolution 7/23, have already taken steps in this direction by requiring the Council to send the OHCHR Study on human rights and climate change, together with a summary of the Council's deliberations on the subject, to the Conference of Parties to the UNFCCC for the latter's consideration. It is important to build-on this initial step by considering the relative merits of, for example, OHCHR or Special Procedure participation in IPCC and UNFCCC discussions, or the drafting of practical guidelines on how to promote and protect human rights while implementing international, regional or national mitigation and adaptation strategies. Such steps might represent a manageable, practical and useful contribution on the part of the international human rights community to the ongoing UNFCCC talks.

Similarly, the fact that the Human Rights Council moved to adopt Resolution 7/23 by consensus, taken together with explicit climate change references in other resolutions such as Resolution S-7/1 on the right to food and Resolution 6/27 on the right to adequate housing as a component of the right to an adequate standard of living, demonstrates a growing awareness among human rights practitioners that climate change must be taken into account when addressing a wide-range of human rights issues – especially economic, social and cultural rights. These developments, building-on others discussed earlier in this submission, also demonstrate an evolving interest in and concern about the complex inter-relationship between human rights, environmental protection, and sustainable development – including, *inter alia*, the concept of a universal right to a safe and sustainable environment. However, at present these steps remain largely *ad hoc* in nature. Thus, the international community should consider ways to develop a more consistent and cohesive response, for example, by: establishing a Special Rapporteur or Special Representative of the UN Secretary-General on human rights and climate change; by reviving the mandate of Special Rapporteur on human rights and the environment (which would offer a more holistic way of addressing the environment-human rights interface including and encompassing issues such as climate change and the illegal dumping of toxic waste); formally requesting existing Special Rapporteurs to address the implications of climate change within their mandates; requesting the Committee on Economic, Social and Cultural Rights to produce an Opinion on the obligations incumbent upon States under ICESCR to address climate change; or organising an international conference (OHCHR and UNEP) on human rights and the environment.

The Maldives Government, with this submission, does not expressly favour or reject any of the above options. Nor does it suggest that this is an exhaustive list. The Maldives merely raises the point that these are important issues and questions that require further thought.

I. INTRODUCTION

The recently adopted Human Rights Council Resolution 7/23 and the requested study by the Office of the High Commissioner for Human Rights (OHCHR) on the link between human rights and climate change are an extension of long-standing international concern about the impacts of environmental harm on human rights. This submission of the Republic of the Maldives to the OHCHR responds to the call made by the UN Human Rights Council in Resolution 7/23 to contribute to the analytical study by the OHCHR on the relationship between climate change and human rights. The submission was compiled following detailed consultations with relevant stakeholders in the Maldives including, *inter alia*: concerned government ministries¹; environmental and human rights NGOs²; the Human Rights Commission of the Maldives (HRCM); the resident UN Human Rights Advisor to the Maldives; the National Disaster Management Centre; the National Centre for Linguistic and Historical Research; and Islands Chiefs, Deputy Island Chiefs and residents from two island communities badly effected by climate change, namely Guraidhoo island and Gulhi island.

Climate change has significant, and at times disastrous, effects on human populations, and these impacts are expected to increase in frequency and intensity. The Republic of the Maldives, which consists of approximately 1,200 low-lying islands, is a State experiencing such severe impacts. These physical impacts in-turn have deep and far-reaching implications for human lives and livelihoods in the Maldives.

This submission addresses the human dimension of climate change, with a particular focus on the Maldives, and is structured as follows. It first analyzes the physical and human impacts of climate change, including sea-level rise, temperature increase, extreme weather events, and changes in precipitation. The submission then analyses the implications of climate change for human rights, examining: collective rights; civil and political rights; economic, social, and cultural rights; and procedural rights. Next, the submission turns to the role of the international community, addressing, *inter alia*, the need for further measures to protect and fulfil climate change-threatened human rights. Finally, the last part of this submission includes a list of possibilities for operationalising the human rights and climate change linkage, without analyzing these possibilities in detail or recommending any particular approach.

¹ Ministry of Planning and National Development; Ministry of Environment, Energy and Water; Ministry of Foreign Affairs; Ministry of Health; Ministry of Higher Education, Employment and Social Security; Ministry of Fisheries, Agriculture and Marine Resources; Ministry of Tourism and Civil Aviation; and Ministry of Economic Development and Trade.

² Including Bluepeace; Eco Care; and Strength of Society.

The Link between Human Rights and the Environment

The international community has persistently voiced its concern regarding the relationship between the condition of the environment and the enjoyment of human rights. At the 1972 UN Conference on the Human Environment, the Stockholm Declaration made the link between human rights and the environment explicit. Principle 1 of the Declaration states:

Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations.

In 1986, the World Commission on Environment and Development was charged by the UN General Assembly to consider the consequences of the deterioration of the human environment for economic and social development. The report from the Commission, *Our Common Future*, concluded that international law was failing to afford adequate protection to the environment. An annex to the report, compiled by an Expert Group on Environmental Law, set out as its first principle:

All human beings have the fundamental right to an environment adequate for their health and well-being.

This principle has been recognized by the General Assembly and the Human Rights Commission,³ as well as three regional agreements: the 1981 African Charter on Human and Peoples' Rights,⁴ the 1988 San Salvador Protocol to the American Convention on Human Rights,⁵ and the 1998 Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters.⁶ And Principle 1 of the 1992 Rio Declaration at the UN Conference on Environment and Development states that human beings are at the centre of concerns about sustainable development, and further states, "They [human beings] are entitled to a healthy and productive life in harmony with nature."

At the national level, numerous constitutions impose a duty on the government to protect the environment from harm, and in many cases the constitution explicitly recognizes a right to a

³ General Assembly Res. 45/94 (1990) "[r]ecognises that all individuals are entitled to live in an environment adequate for their health and well-being." Human Rights Commission Res. 1991/44 includes identical language.

⁴ Article 21 of the Charter states that "[a]ll peoples shall have the right to a general satisfactory environment favorable to their development."

⁵ Article 11 states: "Everyone shall have the right to live in a healthy environment"

⁶ The Aarhus Convention recognizes in its preamble that "every person has the right to live in an environment adequate to his or her health and well-being."

clean and healthy environment.⁷ Chapter II (Fundamental Rights and Freedoms) of the new Constitution of the Republic of Maldives, ratified on 7 August 2008, states that “the State has a fundamental duty to protect and preserve the natural environment, biodiversity, resources and beauty of the country for the benefit of present and future generations. The State shall undertake and promote desirable economic and social goals through ecologically balanced sustainable development and shall take measures necessary to foster conservation, prevent pollution, the extinction of any species and ecological degradation from any such goals”. The President of the Maldives, H.E. Mr. Maumoon Abdul Gayoom, has furthermore called for such a right to be recognised at international level⁸.

In addition to the general right to a healthy environment, environmental degradation can interfere with many specific human rights, including rights to life and health. As Judge Weeramantry explained in a separate opinion for the International Court of Justice:

*the protection of the environment is . . . a vital part of contemporary human rights doctrine, for it is a sine qua non for numerous human rights such as the right to health and the right to life itself. It is scarcely necessary to elaborate on this, as damage to the environment can impair and undermine all the human rights spoken of in the Universal Declaration and other human rights instruments.*⁹

Regional human rights tribunals have elaborated on the ways that environmental harm may violate human rights. For example, the European Court of Human Rights has held that by preventing individuals from enjoying their homes, severe environmental pollution may violate Article 8 of the European Convention on Human Rights, which protects the right to privacy.¹⁰ The African Commission on Human and Peoples’ Rights has read the obligations imposed on States by the right to health, together with the African Charter’s right to a satisfactory environment, as “ordering or at least permitting independent scientific monitoring of threatened environments, requiring and publicising environmental and social impact studies prior to any major industrial development, undertaking appropriate monitoring and providing information to those communities exposed to hazardous materials and activities and providing meaningful

⁷ 109 of 193 national constitutions contain some provision related to prevention of environmental harm or a right to the environment. 97 of these impose an obligation on the national government to prevent harm to the environment, while 56 are explicit in recognizing a right to the environment. The wording of the right to environment varies in these and other instruments, including the right to a “healthy” environment, a “safe” environment, an environment “adequate to his or her health and well-being”, and an environment “capable of supporting human society and the full enjoyment of other human rights.”

⁸ “I firmly believe that the time has come for the international community to grant universal recognition to the fact that environmental protection, preservation and security are part of an individual’s basic human rights. Therefore, I take this opportunity to call for a comprehensive international treaty to guarantee this fundamental human right to millions of people across the world”, (Address by President Gayoom at Inauguration Ceremony of Small Island States Conference on “The Human Dimension of Global Climate Change”, Male’, 13 November 2007)

⁹ *Case Concerning the Gabčíkovo-Nagymaros Project* (Hungary v. Slovakia), [1997] I.C.J. 92.

¹⁰ *Guerra and Others v. Italy* (1998), ¶ 60; *López Ostra v. Spain* (1994), ¶ 51.

opportunities for individuals to be heard and to participate in the development decisions affecting their communities.”¹¹ And the Inter-American Commission on Human Rights has found that environmental degradation may violate the rights to life, to personal safety and integrity, and to property, among other rights.¹²

The link between human rights and the environment has been considered explicitly by United Nations human rights Special Rapporteurs under two distinct mandates. In 1990, the Sub-Commission on the Prevention of Discrimination and Protection of Minorities appointed a Special Rapporteur on Human Rights and the Environment and assigned her the task of preparing a comprehensive report on the linkage between human rights and the environment.¹³ The Final Report, submitted to the Sub-Commission in 1994, concluded that environmental damage has direct effects on the enjoyment of a series of human rights and that human rights violations in-turn may damage the environment.¹⁴ In 1995, the Commission on Human Rights appointed a Special Rapporteur, with a new three-year mandate to examine the human rights effects of illicit traffic and dumping of toxic and dangerous products and wastes.¹⁵ The final report included a call for further action to ensure the protection and full enjoyment of human rights: “Human rights bodies must remain vigilant for human rights violations associated with the activities of multinational corporations, toxic wastes, and other environmental problems. Supervisory mechanisms should be strengthened and codification efforts continued.”¹⁶

The most recently adopted Human Rights Council Resolution 7/23, and the accompanying study by the Office of the High Commissioner for Human Rights (OHCHR) on the link between human rights and climate change is an extension and culmination of the long international concern for the impact of environmental harms on human rights.

General Circumstances of the Maldives

Physio-Geographic, Economic, and Demographic Features

The Maldives has made great progress in the past decade towards fulfilling the right to development of its people, and achieving high economic growth and social objectives, including

¹¹ *Social and Economic Rights Action Center for Economic and Social Rights v. Nigeria* (2001), ¶ 55.

¹² Report on the Situation of Human Rights in Ecuador (1997); *Maya Indigenous Community of the Toledo District v. Belize* (2004), ¶¶ 193-94; see Dinah Shelton, “The Environmental Jurisprudence of International Human Rights Tribunals,” in *Linking Human Rights and the Environment* 20-21 (Picolotti & Taillant eds., 2003).

¹³ Sub-Commission Res. 1990/7. Endorsed by the Human Rights Commission in Commission Res. 1991/44.

¹⁴ E/CN.4/Sub.2/1994/9.

¹⁵ Commission Res. 1995/181.

¹⁶ E/CN.4/2001/55 at para 104.

the achievement of a number of the Millennium Development Goals.¹⁷ Despite these advances, physio-geographic, economic, and demographic features of the Maldives contribute to its vulnerability to climate change.

The Maldives is a chain of coral atolls composed of 1,192 islands. The islands stretch 820 kilometres in length, and cover an area of more than 90,000 square kilometres in the north Indian Ocean. About eighty percent of the islands are less than 1 meter above sea level. The majority of these islands are small and uninhabited; the 203 islands that are inhabited comprise 59% of the total land area in the Maldives. Ninety-six percent of all islands are smaller than 1 km².¹⁸

Of the population totalling roughly 300,000 people, about one third is concentrated in Male', the capital. The remaining population is dispersed among the islands. Only three islands aside from Male' have a population greater than 5,000 people. Seventy-four islands have a population of less than 500 people. This dispersion contributes to difficulties in the provision of governmental services, as reflected in the wide disparities in income and access to social services and infrastructure between the capital and outer atolls.¹⁹

The people of the Maldives have experienced significant growth in income, with average per capita household incomes increasing by 50% in the atolls and nearly doubling in Male' between 1997 and 2004. By 2004, the number of people living on the equivalent of \$1 a day had dwindled to two thousand. In the same period, great improvements in access to education, electricity, phone, sanitation, and medical services have been achieved. The situation of women also improved, as gaps in literacy levels, primary and secondary education, and nutrition levels between males and females have diminished.²⁰

Significant vulnerabilities remain despite recent economic growth. The economy is concentrated in two sectors - tourism and fishing - both of which are impacted by extreme weather and sea events. Tourism and fishing account for about 28% and 8% of GDP respectively.²¹ The fishing sector, in addition to its role as an export industry, is an important source of local livelihoods, supporting 20% of the population and providing a primary source of dietary protein. Tourism in particular provides critical revenue for government expenditures.²²

¹⁷ See Millennium Development Goals: Maldives Country Report 2007

¹⁸ Maldives Ministry of Environment, Energy and Water, National Adaptation Programme of Action (NAPA), 2006.

¹⁹ Id.

²⁰ UNDP and Maldives Ministry of National Planning and Development (MMNPD), Vulnerability and Poverty Assessment, 2004.

²¹ Maldives Ministry of National Planning and Development, Maldives Statistical Yearbook, 2007

²² World Bank, The Maldives: Sustaining Growth and Improving the Investment Climate, 2007

The Maldives faces the twin challenges of isolation in the atolls and high population density in Male'. Provision of services and goods to isolated atolls is expensive and vulnerable to disruption during extreme weather or sea events. At the same time, migration to Male' has led to the pressures of overcrowding in the city, challenging the government's capacity to provide adequate housing and waste management.²³

Historically, the Maldives has not been regularly exposed to extreme natural events. In fact, the Maldives is situated in a relatively calm area which avoids major weather patterns. Still, the number of extreme weather occurrences has been seen to increase significantly over recent years, such as storms, droughts, heavy rains, and high waves caused by cyclones.²⁴ A tsunami in 2004 devastated the Maldives, causing a loss of an estimated 60% of total GDP.²⁵

Political and Cultural Context

The Maldives became a republic in 1968, three years after it gained independence from Britain. Since 1978, H.E. President Maumoon Abdul Gayoom has enjoyed six consecutive terms in Office. The Maldives is in the midst of a governance reform initiative that began in 2003. A revised Constitution was adopted in June and ratified in August 2008. For the first time, the formal legalisation of opposition parties will allow multiple parties to compete in upcoming elections, projected to take place on 8 October 2008. The democratic reforms have been accompanied by a renewed commitment to working with international partners to improve human rights in the Maldives. The Maldives has acceded to eight of the nine core international human rights conventions,²⁶ and it has issued a Standing Invitation to UN Human Rights Special Rapporteurs to visit the country. The Human Rights Commission of the Maldives was first established in 2003. In 2006, it was established as a permanent statutory body under Parliamentary legislation, with wide-ranging powers consistent with the UN's Paris Principles.

Human inhabitation and civilisation in the Maldives islands can be traced back at least three and a half millennia. Throughout its long history, the Maldives has retained a strong sense of its national and cultural identity. The Maldivian cultural identity is a mix of diverse origins,

²³ UNDP and MMNDP, 2004

²⁴ UNDP Maldives, Developing a Disaster Risk Profile for the Maldives: Volume I Main Report, 2006.

²⁵ UNDP Maldives, Defining Success: Tsunami Recovery in the Maldives 2004-2006, 2007

²⁶ International Covenant on Political and Civil Rights, International Covenant on Economic, Social, and Cultural Rights, International Covenant on the Elimination of Discrimination Against Women, International Convention on the Elimination of All Forms of Racial Discrimination, Convention Against Torture, Convention on the Rights of the Child, International Convention for the Protection of All Persons from Enforced Disappearance, Convention on the Rights of Persons with Disabilities.

including from Southern India, Sri Lanka, the Middle East and East Africa. The Maldives has its own distinct spoken and written language called Dhivehi, which is closely related to medieval Sinhalese, but which also contains considerable admixture of Arabic. The written script, Thaana, is based on a mixture of Arabic and south Indian numerals. The Maldives is an exclusively Islamic society and therefore celebrates all the festivals that feature on the traditional Muslim calendar. Islam is an inseparable part of the culture of Maldives. Boat building and other traditions related to the sea and sea-faring are also an important part of local culture, and influence, for example, traditional dancing.

II. THE PHYSICAL AND HUMAN IMPACTS OF CLIMATE CHANGE

This section describes the major impacts of climate change on the physical environment, and links these physical impacts to the effect on human lives and livelihoods in the Maldives. It further identifies the human rights that are affected by the physical and human impacts of climate change. The next section will describe the contours of the particular human rights affected in greater detail.

The Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment, Climate Change 2007, provides an authoritative international statement of scientific understanding of climate change, presenting the most comprehensive and up-to-date scientific assessment of the impacts of climate change, the vulnerability of natural and human environments, and the potential for response through adaptation. The 2007 IPCC report concludes that “warming of the climate system is unequivocal” and that most of the increase in global average temperatures since the mid 20th century is, with a greater than 90% certainty, the result of anthropogenic greenhouse gas (GHG) emissions. Moreover, a high level of agreement exists that global GHG emissions will continue to grow over the next decades. Such emissions at or above current rates, with greater than 90% certainty, will cause further warming and larger changes in the global climate system. As a Small Island State, the Maldives is likely to be especially affected by climate change impacts.²⁷ These impacts include: (1) sea level rise causing permanent flooding, sea level surges, and erosion; (2) increases in sea and surface temperatures causing changes to island and marine ecosystems; (3) extreme weather events, such as severe storms and cyclones causing high-level waves, winds, and sea surges; and (4) changes in precipitation, which can exacerbate the effects of sea-level rise.

²⁷ IPCC, Climate Change 2007: Synthesis Report of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007, 52.

The chart below maps the different climate change impacts to their effects on humans, and to some of the rights that are threatened or undermined as a result (though the list is not exhaustive).

Climate Impact	Human Impact	Rights Implicated
Sea Level Rise <ul style="list-style-type: none"> • Flooding • Sea Surges • Erosion • Salination of land and water 	<ul style="list-style-type: none"> • Loss of land • Drowning, injury • Lack of clean water, disease • Damage to coastal infrastructure, homes, and property • Loss of agricultural lands • Threat to tourism, lost beaches 	<ul style="list-style-type: none"> • Self-determination [ICCPR;ICESCR,1] • Life [ICCPR, 6] • Health [ICESCR, 12] • Water [CEDAW,14; ICRC 24] • Means of subsistence [ICESCR,1] • Standard of living [ICESCR, 12] • Adequate housing [ICESCR,12] • Culture [ICCPR, 27] • Property [UDHR,17]
Temperature Increase <ul style="list-style-type: none"> • Change in disease vectors • Coral bleaching • Impact on Fisheries 	<ul style="list-style-type: none"> • Spread of disease • Changes in traditional fishing livelihood and commercial fishing • Threat to tourism, lost coral and fish diversity 	<ul style="list-style-type: none"> • Life [ICCPR, 6] • Health [ICESCR, 12] • Means of subsistence [ICESCR, 1] • Adequate standard of living [ICESCR, 12]
Extreme Weather Events <ul style="list-style-type: none"> • Higher intensity storms • Sea Surges 	<ul style="list-style-type: none"> • Dislocation of populations • Contamination of water supply • Damage to infrastructure: delays in medical treatment, food crisis • Psychological distress • Increased transmission of disease • Damage to agricultural lands • Disruption of educational services • Damage to tourism sector • Massive property damage 	<ul style="list-style-type: none"> • Life [ICCPR,6] • Health [ICESCR,12] • Water [CEDAW,14; ICRC 24] • Means of subsistence [ICESCR,1] • Adequate standard of living [ICESCR, 12] • Adequate and secure housing [ICESCR,12] • Education [ICESCR,13] • Property [UDHR,17]
Changes in Precipitation <ul style="list-style-type: none"> • Change in disease vectors • Erosion 	<ul style="list-style-type: none"> • Outbreak of disease • Depletion of agricultural soils 	<ul style="list-style-type: none"> • Life [ICCPR,6] • Health [ICESCR,12] • Means of subsistence [ICESCR,1]

Sea Level Rise

Physical Impacts

Sea-levels have been rising worldwide, and the rise is now accelerating. The 4th IPCC Assessment Report indicates that average global sea level rose from 1961 to 2003 by 1.8 mm per year. The average rate of increase from the period 1993 to 2003 was 3.1 mm per year.²⁸ The 2007 IPCC Report concludes, with a very high level of certainty, that sea-level rise is expected to

²⁸ IPCC 2007, at 30.

exacerbate inundation, storm surge, erosion and other coastal hazards, thus threatening vital infrastructure, settlements and facilities that support the livelihood of island communities.²⁹

There is evidence that sea-level rise is already be impacting the Maldives. Although the Maldives has short records of data on sea-level rise, and high variability between sites,³⁰ which makes estimates difficult,³¹ the sea-level as measured at sites within the Maldives appears to be rising at an average rate of around 4 mm per year. A recent study reports a long-term trend (averaged over the last half of the twentieth century) in sea level rise of 1.7 mm per year within the Maldives, which would place it on the high-end of the range in global average sea rise.³²

Sea-level rise and its impacts on the Maldives are only expected to worsen over the next century. The IPCC reports that globally averaged sea-level rise is projected to range between .19m to .58m by the end of the 21st century (2090 to 2099). One contributing factor to projected sea-level rise is the melting of the Greenland ice sheet. Recent observations indicate the Greenland ice sheet may be more vulnerable to warming than previously expected. The above projections of sea-level rise are conservative in that they do not take into account the impact this melting would have on future sea-level rise.³³ Under a scenario in which the sea-level rose by .49 meters, 15% of Male' would be inundated by 2025, and half of the island flooded by 2100.³⁴ Although there are no figures available for the remaining atolls, it is likely that 80% of the atolls lying at 1m or less would be similarly impacted. Destruction of coastal infrastructure, loss of beaches and severe erosion are likely impacts.³⁵

Sea-level rise is likely to continue for centuries and ultimately completely immerse the Maldives. Even if GHG emissions are stabilized, the effects caused by these emissions will not abate. Human-caused climate changes will persist for centuries, because of the long-time scales of climate-related processes. Based on the climate changes that are expected to occur in this century, the melting of the Greenland ice sheet is expected to continue post-2100, raising sea

²⁹ IPCC WG II: Small Islands, Climate Change 2007: Impacts, Adaptation and Vulnerability, 2007, at 689.

³⁰ Three tidal stations at different locations in the Maldives that gathered data in the 1990s showed measurements from 3.2 to 6.5 mm/yr.

³¹ IPCC 2007, 692.

³² John E Hay, Climate Risk Profile for the Maldives, 2006.

³³ IPCC 2007, 47.

³⁴ The most likely rate of increase remains in dispute. Morner, 2004 argues the risk of flooding during the Maldives by the 21st century has been overstated. Church et al, 2006 and Woodworth, 2005 reject the position taken by Morner. Church et al, 2006 concludes the increasing rate of sea-level rise in the region poses a serious problem. Woodworth, 2005 contends that a rise in sea level of approximately 50 cm during the 21st century remains the most likely scenario in the Maldives.

³⁵ UNDP, 2006.

levels by an additional 7 meters.³⁶ Long before such melting is completed, the Maldives would be totally immersed by the sea.

There is great risk to the land and people of the Maldives at even low levels of sea rise.

Climate change not only causes a gradual increase in sea-level, there is also evidence that it contributes to a rise in extreme sea levels—the highest point reached by a sea swell over a given period of time.³⁷ This indicates that even if average sea-level rise is small, sea swells may nonetheless reach heights capable of causing great risk to the population of the Maldives. A risk assessment conducted on behalf of the Government of the Maldives³⁸ indicates that the maximum hourly sea-level is increasing by about 7 mm/year, a rate faster than the rise in average sea-levels. Thus the risk of flooding may be greater than indicated by the rate of increase in average sea levels.

Furthermore, sea surges become more common as storms and extreme weather events become more frequent. Changes in the atmospheric pressure as a result of storms can lead to sudden increases in sea level height.³⁹

As a result of the combination of gradual sea-level rise and extreme weather events, sea surges in the Maldives are likely to become more common. For example, an hourly sea-level that is .7 m higher than the average sea level is currently only expected to take place once every 100 years. A surge at such a height would temporarily flood the majority of the islands, causing great harm to both people and infrastructure.⁴⁰ By 2050, such surges are expected to occur at least annually. The risk of sea surges from extreme weather events is greatest in the northern atolls, with the risk decreasing through to the southern-most atolls. Storm surge heights may reach as high as 1.32 meters in northern atolls, and between .45 to .99 meters in lower-risk central atolls.⁴¹ Sea surges can effectively make islands unliveable, even where mean sea-level ostensibly remains below the elevation of an island.

Human Impacts of Sea Level Rise

³⁶ IPCC 2007, 47.

³⁷ IPCC WGI Observations: Surface and Atmospheric Climate Change, in *Climate Change 2007: The Physical Sciences Basis*, 916

³⁸ By scientist John E. Hay, lead author for the IPCC Fourth Assessment as well as for two previous assessments.

³⁹ The link between climate change and extreme weather events is described in the section Extreme Weather Events, below.

⁴⁰ Hay, 2006

⁴¹ UNDP, 2006

Gradual sea-level rise and the increased incidence of sea surges caused by global climate change threaten the lives, health, and basic subsistence of the people of the Maldives, as well as their livelihood, homes and property. All scenarios in the range indicated by the IPCC undermine the enjoyment of fundamental human rights to a greater or lesser extent.

The most direct and immediate impact of sea-level rise is a reduction in the area of land available for daily living, as flooding eliminates the physical area necessary for the establishment of homes, services infrastructure, economic activities, and the sites of all political, social, and cultural activities. Land is, in this sense, a fundamental pre-cursor to the enjoyment of all other rights.

In the long-term, unchecked sea-level rise will inundate the whole of the Maldives. The extinction of their State would violate the fundamental right of Maldivians to possess nationality and the right of the Maldives people to self-determination.

Without land or State, the most basic rights to life, liberty, and security of person, to possess property, to work and to leisure, to an adequate standard of living, to participate in the cultural life of the community, cannot be realized. The loss of land and State renders all other rights, political and civil as well as economic, cultural, and social rights, unattainable. Climate change, in its advanced stages, undermines the inherent dignity of the Maldives people as members of the human family, the very foundation and purpose of human rights as enshrined in the Universal Declaration of Human Rights.

Sea-level rise and storm surges that only partially or temporarily flood the Maldives also have implications for the enjoyment of human rights. Flooding threatens to violate the right to life and the right to attain the highest attainable standard of physical and mental health. Flooding and the resultant loss of land to inundation also interfere with the enjoyment of the right to a means of subsistence, the right to an adequate standard of living, the right to adequate and secure housing, the right to water, and the right to property.

Loss of life and injury from flooding

The small size and low elevation of the islands mean that most people live in close proximity to the sea. Roughly 42% of the population and 47% of housing structures are located within 100 meters of the coastline.⁴² With almost half of all homes located near the shorelines, even partial flooding of the islands is likely to result in drowning, injury, and loss of life.

⁴² MMEEW, 2006.

The isolation of people living in the atolls exacerbates the risk of loss of life from injury or drowning during flooding. With approximately 40% of the population in the atolls without access to a resident doctor, delay in treatment of injuries may result in avoidable deaths. Flooding of the island from sea surges is likely to destroy lines of communication and transport mechanisms, thus increasing the delay in emergency medical response.⁴³

Loss of life and threat to health from contamination of freshwater sources

The freshwater aquifer under the Maldives is shallow, only about 1.15 meters below the surface, and susceptible to salt water contamination. Fresh water is extremely scarce in the Maldives, with only 103 m³ available per capita each year, far below the 1700 m³ per capita threshold of water scarcity.⁴⁴ In Male' and 38 other islands, desalination plants have been constructed in order to combat water shortages. In the remaining atolls, 90% of the population relies on rainwater, while a minority continues to use shallow wells.⁴⁵

Sea-level rise and flooding from sea surges can readily contaminate the shallow aquifer. Sea-level rise and flooding may also damage waste disposal sites that are located in proximity to the coastline, thereby causing further contamination of the water supply. While normally the vast majority of the population does not rely on wells for drinking, the wells serve as a last resort source of water during dry seasons and in the case of damage to desalination plants or rainwater collectors. These risks are greatest in the case of an extreme weather event that can cause widespread damage to infrastructure, and are discussed further in the section Extreme Weather Events, below.

Threat to subsistence and agricultural livelihoods due to loss of land

Flooding renders land unusable for agricultural activities. The agricultural sector comprises only a small percentage of both GDP and total employment; however, it represents an important supplemental source of food and income on a number of islands. Agriculture (including forestry) is the primary means of livelihood for about 4% of the population. Those dependent on agriculture tend to be from the poorest and most vulnerable economic class. On some smaller islands, as much as 20% of the population derives their primary income from agriculture, and 75% of available land is used for agriculture.⁴⁶

⁴³ The occurrence of sea surges is also closely linked to extreme weather events. The risk to life and health from extreme weather events is discussed in depth in the Extreme Weather Events section, below.

⁴⁴ UNEP, Atlantic and Indian Ocean Environment Outlook, 2005.

⁴⁵ MMEEW, 2006.

⁴⁶ UNDP and MMNPD, 2004.

Farming is already limited by the availability of cultivable land and the poor quality of soil.⁴⁷ Sea-level rise threatens to further reduce the amount of land available for farming. Even temporary flooding causes salination of agricultural lands, reducing soil fertility. Because of the shallow aquifer, flooding also risks contamination of freshwater sources that are needed for irrigation. While much of the Maldives depends on imported foods, locally grown produce is used to supplement dietary needs. Particularly in outer islands where food distribution is problematic, local agricultural products are a necessary element to nutrition.⁴⁸

Threat to livelihood due to beach erosion

Sea-level rise and sea surges threaten the livelihood of the people of the Maldives. Tourism is the largest contributor to the Maldives economy. About 7,000 people are estimated to be employed directly in tourist resorts, with perhaps another 10,000 more indirectly employed in sectors connected to tourism, amounting to about 6% of the population.⁴⁹ The impact of tourism extends far beyond employment, however; it also provides more than a third of total government revenue.⁵⁰ This revenue supports both government salaries as well as expenditures for critical social services. Thus, climate change-induced damage to the tourism sector has the potential to reverse the recent economic growth and related improvements in access to food, clean water, sanitation and medical services. With few natural resource endowments and little land, it is not clear what new sources of livelihood can easily replace losses in tourism.

Climate change threatens to change the environment that is the primary attraction for the tourists coming to the Maldives. While ongoing human-induced beach erosion is being addressed through environmental protection measures, sea-level rise and sea surges carry the potential to aggravate environmental impacts on a scale beyond management capabilities, and even to destroy the sandy beaches and coastal areas that are prized by tourists.⁵¹ In addition to beach erosion, other climate change impacts endanger the viability of the tourism industry in the Maldives.⁵²

Loss of housing and property due to flooding

⁴⁷ MMEEW, 2006.

⁴⁸ MMEEW, 2006.

⁴⁹ World Bank, 2007.

⁵⁰ This figure includes only direct revenue from tourist taxes and rental of resort islands. Total government revenue from tourism is even larger if it takes into account indirect revenues such as import duties collected on goods sold to tourists and airport tax revenue. MMNPD, 2007. See World Bank, 2007.

⁵¹ In the Maldives activities such as the clearing of vegetation and the building of coastal infrastructure are already a source of beach erosion; climate change induced sea level rise and sea surges will exacerbate an ongoing problem.

⁵² Climate changes also threaten coral and reef fisheries (discussed in the section, Temperature Increase) and the very safety of tourist resorts (discussed under Extreme Weather events).

Severe flooding is likely to damage and destroy homes, rendering them uninhabitable. Nearly all houses in the Maldives are one story high and are not elevated to reduce the impact of flooding.⁵³ While most housing structures in the Maldives are made from brick, two percent of the population in the atolls own homes with sand floors that are especially vulnerable to damage.⁵⁴ Flooding can also result in soil subsidence that, months later, leaves otherwise undamaged homes in need of repair or replacement.⁵⁵ The dearth of land at elevations higher than one meter makes it impossible for individuals to seek protection from flooding on higher ground.

Similarly, flooding can result in the loss of some or all of the assets owned by an individual, not only one's home, but also land, farm or other work implements, and all of one's personal possessions.

Temperature Increase

Physical Impacts of Temperature Increase

Average temperature has been rising during the last century, both globally and in the Maldives. Evidence exists for increases in both surface and sea temperatures.⁵⁶ Over the last century, the global mean temperature rose by .6° C.⁵⁷ The IPCC concludes that this warming is, with 90% certainty, the result of anthropogenic GHG emissions.⁵⁸ In the Maldives, seasonal change in temperature typically remains in a narrow range because of the tropical climate, with average monthly temperatures ranging between 28°C to 29°C, only rarely surpassing 30°C. However, the average temperature in the hottest month, April, increased between 1955 and 2000 by .16° C per decade.⁵⁹

Temperature increase is expected to continue throughout the 21st century, with extreme temperatures also becoming more likely in the Maldives. The IPCC projects that global temperatures will continue to increase if GHG emissions are not mitigated. Depending on the emission scenario, average global temperature rise is predicted to rise between 1.1°C to 6.4°C

⁵³ UNDP, 2006.

⁵⁴ UNDP, 2004

⁵⁵ Asian Development Bank et al, The Maldives: One Year After the Tsunami, 2005.

⁵⁶ IPCC 2007, 30.

⁵⁷ IPCC WGII 2007, 690.

⁵⁸ IPCC 2007, 39.

⁵⁹ A. J. Edwards et al, Coral Bleaching and Mortality on Artificial and Natural Reefs in the Maldives in 1998, in Marine Pollution Bulletin, 2001.

over the next century.⁶⁰ Warming of all islands in the Indian Ocean is very likely to occur during this century, at a rate slightly less than the global average.⁶¹ Models focused on the Maldives suggest that maximum temperatures will continue to increase throughout the century, and temperature extremes will become a more frequent occurrence. For example, a high temperature of 33.5°C that currently occurs only once every 20 years is expected to occur once every three years by 2025.⁶²

Human Impacts of Temperature Increase

Continued warming of land and sea temperatures would undermine the health, basic subsistence, and livelihood of the Maldives people. Warming of surface temperatures, combined with a wetter environment from other climate change effects, leads to an increase in disease that threatens to violate the right to life and the right to attain the highest attainable standard of physical and mental health. Increases in some disease rates may have special implications for the rights of children. The warming of sea temperatures will harm both fisheries and coral, which has implications for the right to work, the right to a means of subsistence and the right to an adequate standard of living.

Loss of life and threat to health from disease

While it is difficult to link specific outbreaks of disease to climate change directly, it is recognized that climate change is a contributor to the incidence of certain health threats.⁶³ Temperature increase can lead to an increased risk of both water and vector-borne diseases that are common in tropical islands, by changing reproductive rates in pathogens.⁶⁴ The risk of disease transmission is further exacerbated by other climate changes, including extreme weather events and changes in precipitation, discussed below. Higher temperatures are conducive to the

⁶⁰ The projections in the 2007 IPCC report are even higher than in the Third Assessment Report, which suggested a maximum temperature increase of 5.8°C. IPCC 2007, 45.

⁶¹ The IPCC 2007 report indicates that it is likely (> 66% certain) that this rate will be less than the global average. (IPCC WGI 2007,851) The general pattern of warming is a change in temperatures extremes, with an increase in the occurrence of the hottest temperatures and a decrease in the occurrence of the coolest temperatures. IPCC 2007, 913.

⁶² MMEEW, 2006.

⁶³ For example, it is estimated that 2.4% of global diarrhoeal disease is attributable to climate change, while between 46 to 91% of death by drowning is a result of environmental factors including flooding, natural disaster, and recreational environments (Moosa, 2008).

⁶⁴ Temperature affects the development of mosquito larvae, the survival and size of adults, the reproductive cycle, and the maturation of the virus in the mosquito. At higher temperatures, the mosquito matures more rapidly, and this means adults tend to be smaller and need to feed more often, increasing transmission potential (WHO, 2003).

transmission of dengue fever, malaria and other mosquito-borne diseases, scrub typhus and diarrhoeal diseases.⁶⁵

Dengue is now endemic to the Maldives and reached epidemic proportions in 2005, although access to medical care has kept mortality from the disease below 1%.⁶⁶ From 2000 to 2004, an average of 80 cases of dengue fever was reported each year.⁶⁷ By contrast, in the first 24 weeks of 2008 alone, 797 cases of dengue had been reported.⁶⁸

In 2006, the Maldives experienced its first outbreak of chikungunya, a disease that is also transferred by mosquitoes and causes similar symptoms as dengue, including high fever.⁶⁹ As of June 2008, incidence of the disease remained high with 268 cases reported during the year.⁷⁰ Scrub typhus, which is transmitted by a type of mite, also re-emerged in 2002. The disease was last documented in the Maldives in the early 20th century. Ten percent of those infected during the early stages of re-emergence died. This mortality rate has since declined to 1% with proper treatment.⁷¹

Diarrhoeal diseases currently have a zero mortality rate in the Maldives, yet the number of people affected by acute diarrhoea increased from 10,000 in 2004 to 15,000 cases in 2005.⁷² Children under five are especially vulnerable to diarrhoea, as they are at heightened risk of dehydration and death in severe cases.⁷³

Threat to subsistence from harm to fisheries

Pole and line tuna fishing has provided a primary source of subsistence for the people of the Maldives for hundreds of years. Despite the development of a mechanized commercial fishing industry, pole and line fishing of tuna remains in practice in the Maldives. Tuna is commonly served at every meal. About 30% of total tuna catch in the Maldives is consumed locally, an

⁶⁵ WHO, Using Climate to Predict Infectious Disease Outbreaks: A Review, 2004.

⁶⁶ Sheena Moosa, Adaptation measures for human health in response to climate change in Maldives, in Regional Health Forum, 2008.

⁶⁷ Maldives Ministry of Health (MMH), the Maldives Health Report, 2004.

⁶⁸ Maldives Ministry of Health (MMH), Epidemiology and Disease Surveillance Unit of the Department of Public Health, 2008.

⁶⁹ MMEEW, 2006.

⁷⁰ MMH, 2008.

⁷¹ Moosa, 2008.

⁷² This increase is likely connected to impacts from the Tsunami of 2004. However, as is explained in the Extreme Weather Events section below, the effects of the Tsunami on disease are similar to the effects of climate change impacts.

⁷³ Moosa, 2008.

amount in excess of 50,000 metric tons each year. Tuna catch represents an important source of locally available protein, in light of the scarcity of land for animal husbandry and the isolation of many atolls from major food distribution networks.⁷⁴

The two predominant species of tuna caught by pole and line fishing in the Maldives, the skipjack and yellowfin, are both migratory. The health of these fishery stocks depends on regional management practices, and the environmental conditions throughout the Indian Ocean. The effects of temperature increase on these tuna populations remain uncertain. Migration patterns of the species may vary in order to take advantage of new food sources (phytoplankton biomass blooms) caused by changes in the ocean temperature. Changes in migration patterns could impact the abundance of tuna available throughout the Maldives.⁷⁵ In the short-term, most changes are likely to pose difficulties to traditional fishers, as long-held fishing techniques would need to adjust to new fishery conditions.⁷⁶

In addition, traditional pole and line fishing depends on the availability of live bait. Live bait includes a number of non-migratory fish species that live among coral reefs and depend on the health of the local coral reef environment for their survival. A rise in sea temperature both harms the coral reef (resulting in the widespread death of coral, explained in the next section) which serves as the habitat of live bait species, and disrupts the species' own reproductive cycles.⁷⁷ The dependency on live bait leaves traditional subsistence tuna fishing vulnerable to the effects of temperature rise on local coral reef environments.⁷⁸

Threat to livelihood due to coral bleaching and death

Temperature rise from global climate is a serious threat to the health of coral reefs worldwide.⁷⁹ In the Maldives, healthy coral reefs provide the foundation for the two most important sectors of

⁷⁴ Shiham Adam, *Vulnerability and Adaptation Assessment of the Fisheries Sector of the Maldives – NAPA Project*, 2006.

⁷⁵ There is some evidence, for example, that both tuna populations changed migration patterns during the extreme heating that occurred in 1998 as a result of El Nino, with decreasing skipjack catch while increasing yellowfin catch in the Maldives. It is not clear whether changes in migration will result in a significant net reduction in tuna availability, a change in the season of their availability, or a change in the composition of species available (Adam, 2006).

⁷⁶ Adam, 2006.

⁷⁷ For example, many of the reef fish species have a seasonal larval stage in their life cycle, during which food must be readily available in order for the fish to survive to adulthood. Temperature increase and damage to coral may cause changes in the abundance of food during the larval stages, reducing the number of species that survive to adulthood to reproduce (Adam, 2006).

⁷⁸ Adam, 2006.

⁷⁹ IPCC 2007, 64.

the economy: tourism and fisheries.⁸⁰ The loss of coral thus threatens the livelihood of over a quarter of the population of the Maldives who are directly or indirectly employed by these sectors.⁸¹ Moreover, the two sectors combined represent greater than 50% of government revenue intake.⁸² Coral loss threatens the improved access to social services that has been financed by growth in both sectors.

Sea surface temperatures that rise by about .8 to 1°C above the average maximum temperature of the hot season and persist for four weeks or longer result in “bleaching” of coral. Bleaching is a form of damage to living coral, leaving behind a whitened appearance.⁸³ It is possible for coral to recover from bleaching, but it takes time and the coral will temporarily suffer reduced growth and reproductive capacity. Multiple bleaching events are therefore likely to kill off coral if there is an inadequate period of time in which coral can recover.⁸⁴ The increased frequency of abnormally high temperatures predicted to occur in the Maldives indicates that bleaching events are likely to occur with greater regularity in coming decades. Widespread coral die-off would seem inevitable. The bleaching of coral from temperature extremes has already occurred periodically in the Maldives. The extremely unusual high temperatures in 1998 may provide a glimpse of the extent of coral damage that is likely to arise from global climate change. In that year, coral bleaching increased by nearly 20 fold, with average live coral cover declining to 2% in the central atolls. The coral is now in stages of recovery, but remains vulnerable to future high temperature events.⁸⁵

Snorkelling and diving are two of the great attractions of the Maldives for tourists.⁸⁶ Coral bleaching not only destroys the beauty of the coral itself; it threatens the health of the ecosystem that supports a rich diversity of colourful reef fish. As mentioned above, reef fish may be further impacted by the effect of temperature changes on their reproductive success. Combined with other effects of climate change, loss of coral reef undermines the viability of the tourism sector.

⁸⁰ Of equal importance is the role coral reefs play as natural defense barriers to extreme weather events and storm surges. Healthy coral reefs are capable of adapting to some changes in sea conditions, growing upward as sea levels rise. Healthy coral reefs would thus provide some protection to coastal populations from the harms of sea level rise.

⁸¹ Based on World Bank 2005 estimates that roughly 7,000 local people are directly and 10,000 indirectly employed in the tourism sector, and the Adam 2006 paper estimates that 15,000 are employed in the fisheries sector.

⁸² MMPND, 2007.

⁸³ Bleaching is actually the result of the expulsion of zooxanthellae, algae that live symbiotically within coral and provide up to 90% of its energy.

⁸⁴ IPCC WGII: Cross Chapter Case Study, 2007a, 850.

⁸⁵ MMEEW, 2006.

⁸⁶ UNEP, Maldives Post-Tsunami Environmental Assessment, 2006.

Loss of coral and the damages caused to the ecosystem also have implications for the fishery sector. In 2004, the value of reef fishing export (as opposed to tuna exports) totalled about \$3 million.⁸⁷ While this is a small portion of total fishing export value, reef fishing also represents a significant source of supplemental income for fisherman in outer atolls who supply reef fish catch directly to tourist resorts. For these fishers, there are few alternative opportunities to replace the loss in livelihood as reef fish populations decline.⁸⁸ The value of reef fish on a per unit basis has increased greatly in recent years, while the value of total reef fish catch has declined. The reef fisheries are most likely already suffering from the bleaching and death of corals as well as overexploitation, making it difficult to maintain previous levels of fishing. Over-fishing leaves the ecosystem particularly vulnerable to the impacts of temperature rise and coral bleaching caused by climate change. Fishers may no longer be able to find adequate supplies of reef fish to support their livelihoods. For example, two aquarium fish species exported in large numbers before the 1998 bleaching event disappeared from exports following the bleaching. Both of these species feed predominantly on coral which were most affected during the bleaching.⁸⁹

Extreme Weather Events

Physical Impacts of Extreme Weather Events

The intensity of tropical storms and cyclones is likely to increase as a result of climate change. According to the IPCC 4th Assessment Report, future tropical storms are likely to have both higher peak wind speeds and heavier levels of precipitation as a result of rising sea-surface temperatures.⁹⁰

The Maldives is situated in a traditionally calm part of the Indian Ocean, with mild tropical cyclone activity and few major weather patterns.⁹¹ While, at present, it does not appear that cyclone activity in the Maldives is increasing as a result of climate change, there is considerable anecdotal evidence that the frequency, unpredictability and severity of storms in general has

⁸⁷ Common reef fish include grouper, lobster, live aquarium fish, sharks, and sea cucumbers. Much of the market for reef fish is stimulated by tourist demand, and demand in China, rather than local food needs.

⁸⁸ Adam, 2006.

⁸⁹ MMEEW, 2006.

⁹⁰ IPCC 2007, 46.

⁹¹ The difference between a “storm” and a “cyclone” is largely a matter of degree. A storm with wind speeds higher than a certain threshold are considered cyclones, however the distinction is somewhat arbitrary. An intense storm may cause a similar level of harm as a mild cyclone. Some therefore use the terms interchangeably. The Maldives does not have its own system of classification of storms and cyclones, given their relative infrequency (UNDP, 2006).

increased in recent years. There has also been a significant increase in both the frequency and the magnitude of other weather-related extreme events such as storm surges and tidal swells. Such phenomena result from distant weather patterns, with generated waves then travelling across open sea to the Maldives. For example, from 15-17 May 2007, powerful swells repeatedly hit many islands throughout the Maldives – inundating over eighty islands. The swells were generated by waves emanating from a polar storm 3,500 miles south west of the Maldives.

Storms, cyclones and other weather-related extreme events have severe impacts on the Maldives islands. Tropical cyclones can bring wind at speeds greater than 150 km/hr, 30 to 40 cm of rainfall in a single day, and tides that exceed 4 to 5 meters. These effects have a wide scope, capable of extending outward to a 200 to 300 km radius. Thus even storms and cyclones that do not directly pass over the Maldives can cause a sudden rise of sea-level along the coast (a storm surge). Large waves are one of the most threatening risks posed by storms and cyclones in the region, creating sea surges that can be over a meter high. Combined with the high tide levels, such waves may reach up to 2.3 meters in high risk northern atolls, engulfing low lying islands.⁹²

The particular vulnerability of the Maldives, in terms of geographic, topographic, and socio-economic factors, led the UNDP to rate the overall risk of disaster as “moderate” in the Maldives, despite the relatively infrequent occurrence of cyclones. Thirteen inhabited islands were identified at a very high-level of physical risk, while an additional twelve inhabited islands were considered at very high risk for socio-economic reasons.⁹³

Human Impacts of Extreme Weather Events

The impact of the Tsunami of 2004 in the Maldives demonstrates concretely how extreme weather events threaten the lives, health, livelihood, and property of the Maldivian people. Tsunamis are not caused by global climate change, but the powerful waves they produce are indicative of the damage that can be caused by climate change induced storms and sea surges. It is estimated that the Tsunami waves reached between 1 and 4.4 meters.⁹⁴ With rising sea-level and more powerful storms, sea surges are expected to (and indeed already are observed to) reach such heights more frequently. The Tsunami thus provides a good indication of how future extreme weather events will impact the Maldives.

Extreme weather events and the sea surges associated with them undermine the Maldivians’ right to life, the right to attain the highest attainable standard of physical and mental health, and a

⁹² UNDP, 2006.

⁹³ UNDP, 2006.

⁹⁴ ADB, 2005.

closely linked right to clean water. The damage caused by these events to island infrastructure and the coastal environment furthermore interfere with the enjoyment of the right to a means of subsistence, the right to an adequate standard of living, the right to adequate and secure housing, the right to education, and the right to property.

Loss of life and injury from extreme weather induced flooding

Eighty-two people lost their lives as a result of the Tsunami of 2004, with another twenty-six missing and presumed dead.⁹⁵

The risk of loss of life is made worse by the impact the powerful waves have on both transport and communications systems, which are integral to the arrival of immediate disaster relief services. Atoll populations depend on traditional forms of sea transport for access to food and medical services. Approximately 40% of the population in the atolls does not have a doctor in permanent residence. In some atolls, up to 50% of the population lack at least weekly transport to a regional centre.⁹⁶ This access to health services and food can be cut off as a result of an extreme weather event.

For 10 hours or more, 182 islands lost all form of communication following the Tsunami. For at least four islands, the loss of electricity persisted for over a year after the disaster. The damage to coastal access points, such as jetties and harbours, added a further challenge to disaster relief efforts. In some cases, access points were filled with debris from infrastructure that had been demolished by the Tsunami waves.⁹⁷ The combination of the isolation of the atolls and the likelihood of damage to transport and communication facilities increases the risk of avoidable death from a delay in the provision of medical services.

Loss of life and threats to health from damage to infrastructure

In addition to the immediate threat of death from forceful wind and waves, extreme weather events increase the risk of health impacts because of the physical damage they cause to services and infrastructure on impacted islands. Infrastructure is highly exposed to extreme weather events, with 75% of communications facilities and 90% of waste disposal sites located within 100 meters of the shore.⁹⁸ Hospitals themselves may be damaged, and sanitation and water systems destroyed. Debris from damaged infrastructure may contain hazardous components that pose additional health threats to the population.

⁹⁵ ADB, 2005.

⁹⁶ UNDP and MMNPD, 2004.

⁹⁷ UNEP, 2006.

⁹⁸ MMEW, 2006.

In the aftermath of the Tsunami, clean drinking water became unavailable on many affected islands. In 69 of the most affected islands, all water collected and held in household or communal water tanks was lost, leaving no freshwater available for drinking or cooking⁹⁹. An estimated 96% of the rainwater storage tanks were damaged, limiting the capacity to replenish the lost supplies. Even desalination plants may malfunction, as occurred to one plant during the Tsunami.¹⁰⁰ Alternative sources of water are likely to become contaminated, as a result of salt water intrusion into freshwater wells and damage caused to sanitation systems. There are no sewage systems outside of Male' and septic tanks are the most common method of waste storage in the atolls. Tsunami waves caused the tanks to crack and leak human waste, contaminating the groundwater.¹⁰¹ Measurements taken of water supplies indicated high salinity and faecal contamination substantially in excess of acceptable levels. Such contamination occurred in an estimated 36 different islands.¹⁰²

The Tsunami generated approximately 290,000 cubic meters of debris, widely dispersed over the islands. Some of it was hazardous, and other waste compromised the sanitation of water and living spaces. Asbestos from housing debris, a known human carcinogen that contributes to respiratory illness, lay exposed to the environment. Human and animal waste and remains, oil spilled from generators, and demolition waste also posed threats to human health.¹⁰³

The Tsunami waves also damaged crucial medical infrastructure, threatening the provision of health care services. One regional hospital, two atoll hospitals, 19 health centres, and 21 health posts were damaged or destroyed, a total of approximately US\$12 million in value. In addition to this damage, medical equipment and supplies were lost.¹⁰⁴ This damage not only threatens the capacity to provide care for victims of the extreme weather event, but also to provide essential services such as vaccinations or distribution of medicines throughout the region.

Loss of life and threat to health from disease

Diseases that are normally kept under control through provision of health care or other services may emerge or reach epidemic levels as a result of environmental changes following an extreme weather event. Water shortages may result in less frequent bathing and hand-washing, and water not normally considered safe for drinking may be consumed, increasing the risk of transmission of diarrhoeal diseases.¹⁰⁵ Immediately following the Tsunami, the World Health Organisation

⁹⁹ UNEP, 2006

¹⁰⁰ UNEP, 2006.

¹⁰¹ ADB, 2005.

¹⁰² UNEP, 2006.

¹⁰³ UNEP, 2006.

¹⁰⁴ ADB, 2005.

¹⁰⁵ WHO, 2004.

issued a technical note on the increased risk of communicable diseases because of the flooding. In the Maldives, diseases such as Hepatitis A and B were at risk of immediate outbreak due to unsafe drinking water and inadequate sanitation in the aftermath of the Tsunami.¹⁰⁶ In the period following the disaster, diseases transmitted by mosquitoes, such as dengue fever, also posed a risk. Standing pools of sea water are eventually diluted with freshwater, and the stagnant water can become a breeding site for mosquitoes. Diseases carried by other live hosts, such as mites, are also a threat as the dislocation of people leads to greater contact with the forest and bush where hosts are located.¹⁰⁷

All of these risks are exacerbated by the relocation, temporary housing, and overcrowding that will often accompany an extreme weather event. As displaced people find temporary shelter among populations on unaffected islands, there is a greater risk of transmission of disease to the unexposed populations. This risk is particularly acute on small islands, where sanitation and other facilities may already be strained to provide services for the original population. In the Maldives, it was these indirect factors—overcrowding, poor waste management, increased travel between islands—that led to the epidemic in dengue during the nine months following the Tsunami.¹⁰⁸

Impact on mental health

Extreme weather events have a marked impact on the mental health of the affected population, and of children in particular.¹⁰⁹ The Tsunami caused families to lose loved ones, a lifetime of savings and assets, and their traditional sources of livelihood. Psychological trauma has consequently emerged as a major post-Tsunami health issue. People experienced a range of symptoms, including intense fear of another Tsunami, anxiety and depression, inability to sleep, loss of appetite, fear of the ocean, and an inability to concentrate. The extended displacement of whole communities, often leading to overcrowded living conditions, aggravates the stress experienced by the affected population.¹¹⁰ In the fourteen most affected islands, psychological problems persisted among two-thirds of women and one-half of men, manifesting as difficulty in sleeping or eating, or in general feelings of hopelessness about the future and the safety of their children.¹¹¹

¹⁰⁶ WHO, 2004.

¹⁰⁷ WHO, 2004.

¹⁰⁸ Moosa, 2008.

¹⁰⁹ Athifa Imbrahim and Abdul Hameed, Mental health and psychological response after the worst natural disaster in the history of the Maldives, in *International Review of Psychiatry*, 2006.

¹¹⁰ ADB, 2005.

¹¹¹ MMPND, Republic of Maldives: Tsunami Impact Assessment 2005: A socio-economic countrywide assessment at household-level, six months after the Tsunami, 2005.

Threat to subsistence from damage to agricultural lands

The agricultural sector was one of the sectors most damaged by the economy, with about half of all cultivated land on inhabited islands destroyed by salt water intrusion. Fruit trees were also damaged, uprooted by the wind or inundated with salt water.¹¹² The intrusion of salt water into the ground water poses a serious challenge for future agricultural activities, as this is the only source of water for irrigation. The Ministry of Fisheries, Aquaculture, and Marine Resources estimated it would take US\$ 11.1 million and over five years to restore the sector to its pre-Tsunami levels.¹¹³

Threat to subsistence from damage to fishing supplies and vessels

The Tsunami is estimated to have caused nearly US\$25 million worth of damage to the fishery sector in terms of lost income and livelihood of fisherman and fish processors. The Tsunami waves caused the complete loss of 120 fishing vessels, the partial loss of another 50 fishing vessels, and the extensive loss of fishing equipment. For many pole and line tuna fishers, it is a struggle to replace these losses and begin their livelihood anew.¹¹⁴

Threat to subsistence from damage to ports and transport vessels

Nearly all food in the Maldives is imported, with the exception of tuna and coconuts.¹¹⁵ The high-level of dependence on imported staple foods creates a risk of food crisis during extreme weather events. The loss of transport vessels, damage to ports or other coastal access points, and large amount of debris that can block access points all work to cut off isolated islands from external sources of food. Food distribution in the Maldives takes place by boat from Male' out to the islands. Warehousing for long-term food storage is virtually non-existent, except in Male' and nine other islands.¹¹⁶ This combination of factors-- the destruction of locally available food sources, damage to communication and transport lines, and lack of local food storage—creates a situation of food insecurity in isolated islands and a special vulnerability to extreme weather events.

Threat to adequate standard of living by loss of livelihood related to tourism

Extreme weather events can be disastrous for the tourism sector, not only damaging infrastructure and services necessary for the sector to function, but damaging the reputation of the Maldives as a safe tourism destination. The Tsunami killed three foreign tourists, and in the aftermath of the disaster tourist arrivals dropped by 50%. In the tourist high-season following the

¹¹² ADB, 2005

¹¹³ UNEP, Maldives Post-Tsunami Environment Assessment, 2006.

¹¹⁴ ADB, 2005.

¹¹⁵ MMEEW, 2006.

¹¹⁶ MMEEW, 2006.

Tsunami, bed occupancy rates remained 20 to 30% lower than normally expected. The Tsunami is estimated to have cost US\$250 million in lost business. Direct damage from the Tsunami waves caused 19 of 87 tourist resorts to close temporarily, while 6 had to be totally rebuilt at an estimated cost of US\$100 million.¹¹⁷ Some resorts reduced the size of their staff in response to the Tsunami, and employment in hotels and restaurants dropped from 16% in 2004 to 13% in 2005 among the outer atolls.¹¹⁸

The damage to the tourism sector reduces job opportunities even as communities seek employment and the wages necessary to recover from their losses. As a result, some people will be left unemployed and incapable of improving their living conditions. About a year after the Tsunami, displaced persons from the most affected islands had income levels at about 80% of their previous levels, while unemployment levels rose from 7 to 12% in the working age population.¹¹⁹

The damage to the tourism industry also has effects on government revenue. An estimated US\$40 million in revenue were lost during 2005 as a result of the Tsunami.¹²⁰ These losses in revenue come at a time when government expenditure reaches its highest levels in order to support relief, recovery, and reconstruction efforts.

Finally, extreme weather events result in severe beach erosion that undermines the long-term sustainability of the tourism sector. The Tsunami reportedly impacted the coastlines of 130 islands, resulting in the erosion of over 10 million square meters of beach. Large areas of coastal vegetation that play a role in stabilising beach sand were damaged and killed. The impact of extreme weather events on beach areas exacerbates the vulnerability of the coast to the gradual rise of sea-levels.

Threat to adequate standard of living from loss of housing

The proximity of most homes to the coast in the Maldives leaves communities extremely vulnerable to the high-powered waves and wind that accompany extreme weather events. The Tsunami caused the displacement of approximately 10 percent of the population temporarily, and about 11,000 people remained in some form of transitional shelter in the aftermath. Roughly 8,000 homes were damaged and destroyed. In 2005, about half of all internally displaced persons remained living in temporary family units made of plywood and zinc roofing.¹²¹

¹¹⁷ UNEP, 2006.

¹¹⁸ MMPND, Republic of Maldives: Tsunami Impact Assessment 2005: A socio-economic countrywide assessment at household-level, six months after the Tsunami, 2005.

¹¹⁹ MMPND, 2005.

¹²⁰ ADB, 2005.

¹²¹ ADB, 2005.

Threat to education from damage to infrastructure

Schools are also vulnerable to the impacts of extreme weather effects. The Tsunami affected 116 of the Maldives 315 schools, with eight schools requiring total reconstruction and the remainder in need of at least minor repairs. The cost to repair the damage to the schools totalled roughly US\$21.1 million, not including the immense losses in school supplies and equipment that were also caused by the Tsunami. In addition, schools that were not damaged had to cope with the sudden influx of displaced students, at times overburdening the capacity of a school to provide educational services.¹²²

Loss of property from extreme weather induced flooding

For some families, the Tsunami destroyed their entire life savings. Homes, fishing boats, small manufacturing equipment, agricultural lands, farming implements, and personal possessions were all lost to the flood waters.

Changes in Precipitation

Physical Impacts of Changes in Precipitation

Patterns of rainfall are likely to change globally, with both heavy precipitation and drought becoming more frequent events. The IPCC 4th Assessment Report concludes that climate change is greater than 50% likely to have contributed to a global increase in heavy rainfall and area affected by drought.¹²³ It is very likely that heavy precipitation events will become more frequent as the climate continues to change.¹²⁴

Annual rainfall is likely to increase during the wet season in the Maldives, with extreme rainfall events becoming more common.¹²⁵ In the Maldives, there are two seasons: a wet season of torrential rains, and a dry season with minimal rain. Rainfall is expected to increase during the wet season, but not in the dry season. Extreme rainfall events currently occurring on a 100-year or 25-year time scale are likely to occur twice as often by 2050. There is not yet clear evidence whether drought will become more frequent in the Maldives, although a number of other Small Island States face this hardship as rainfall decreases during the dry season.¹²⁶

¹²² ADB, 2005.

¹²³ IPCC 2007, 41.

¹²⁴ IPCC 2007, 46.

¹²⁵ IPCC WGI 2007, 851.

¹²⁶ The Caribbean islands, for example, are projected to experience severe water stress as a result of climate change. Like many of the atolls in the Maldives, most of the Caribbean islands depend on rainwater collection for their water

Human Impacts of Changes in Precipitation

Heavier rainfalls exacerbate the threat to the life, health, and livelihood of the Maldivian people caused by other effects of global climate change. The combined effect of heavy rainfall and temperature rise undermines the enjoyment of the right to life and the right to attain the highest attainable standard of physical and mental health. Heavy rainfall worsens the impacts of sea-level raise and extreme weather events on agriculture, undermining the right to a means of subsistence.

Loss of life and threat to health from disease

Like higher temperatures, increased rainfall can promote the transmission of some communicable diseases. The lifecycles of some vectors, such as mosquitoes, are affected by changes in precipitation. The World Health Organization recognizes dengue, and a large number of other mosquito-born diseases, as highly sensitive to climatic changes, with heavy rain and high temperatures associated with epidemics.¹²⁷ As described above, the Maldives has experienced an outbreak in dengue of epidemic proportions in recent years. This increase in dengue was immediately preceded by an increase in rainfall in the region, suggesting a link between the two trends.¹²⁸

In some regions, changes in the temperature and humidity of the environment can lead to the introduction of diseases that are not normally present in the area. This can occur as an environment becomes more hospitable to certain disease vectors, or as human behaviour in response to climate change increases the vulnerability to diseases.¹²⁹ It is unclear to what extent the Maldives is vulnerable to the introduction of new vector born diseases as a result of climate change.¹³⁰

Additionally, if the Maldives were to experience an increase in drought during the dry season, water shortages could enhance the risk of diarrhoeal diseases.¹³¹ Access to clean water is critical

supply and are very likely to face water shortages during the dry season as rainfall decreases. (IPCC 2007 WG II, 697); Hay, 2006.

¹²⁷ WHO, Communicable Disease Working Group on Emergencies, 2004

¹²⁸ Moosa, 2008.

¹²⁹ WHO, 2004.

¹³⁰ It is difficult to attribute the emergence of a specific disease, such as the recently discovered chikungunya, to climate changes.

¹³¹ At least one model has suggested that rainfall will decline in the Indian ocean during the dry season by 2050 and 2080. However, there is a wide margin of error in this study, and the study did not focus on the Maldives in

to the prevention of the disease. However, the poor condition of septic tanks, the shallow groundwater layer, and the reliance on rainwater collectors in the outer atolls leaves populations vulnerable to diarrhoeal outbreaks in the case of a water shortage. As water from collectors runs out, families are forced to turn to shallow wells for cleaning and then drinking water. Families may in-turn reduce their level of hygiene to preserve water, washing their hands, clothing, or dishes less often. The shallow wells are at risk of contamination from human waste leakage from poorly built and maintained septic tanks; the risk of contamination is made worse during flooding events. Drinking contaminated water results in the spread of diarrhoeal diseases.¹³²

Threat to subsistence from damage to agricultural lands

Heavy precipitation can result in erosion of more fertile top soil. In the Maldives, where agricultural lands are scarce and tend to be nutrient poor, this erosion further damages the viability of the agricultural sector.¹³³

III. THE IMPLICATIONS OF CLIMATE CHANGE FOR HUMAN RIGHTS

The human impacts of climate change have important implications for the human rights recognized in international human rights conventions, including the Universal Declaration of Human Rights (“UDHR”) as codified into the International Covenant on Civil Political Rights (“ICCPR”) and the International Covenant on Economic, Social, and Political Rights (“ICESCR”), as well as the Convention on the Rights of the Child (“CRC”) and the Convention on the Elimination of All forms of Discrimination against Women (“CEDAW”). Under these international treaties, the State has the primary duty not only to respect the covered rights, but to protect and fulfil these rights through positive action. Parties to international human rights conventions are obligated to take measures to prevent the violation of the climate change-affected rights.

The Maldives has acceded to nearly all of the core international human rights treaties, including ICCPR, ICESCR, CRC, and CEDAW. The newly ratified Constitution provides for further protections of many of the core human rights. Moreover, as recognized in statements by the High Commissioner for Human Rights¹³⁴, the UN Special Rapporteur on the Independence of Judges

particular. (Lal, 2002) The IPCC 2007 report notes that prediction of precipitation levels is an area in which further research is needed. (IPCC WGII 2007, 711).

¹³² Reena Singh et al., *The Influence of Climate Variation and Change on Diarrheal Disease in the Pacific Islands*, in *Environmental Health Perspectives*, 2001

¹³³ MMEEW, 2006.

¹³⁴ In February 2007, The President of the Maldives, H.E. Maumoon Abdul Gayoom, received a letter from the United Nations High Commissioner for Human Rights, H.E. Ms. Louise Arbour, in which she welcomed recent positive developments in the area of human rights protection and stressed the importance of implementing commitments at the national level. Press release available at: <http://www.foreign.gov.mv/v2/news.php?news=45>.

and Lawyers¹³⁵, and the US State Department¹³⁶, the Maldives has made increasing progress toward the realization of internationally protected human rights. The effects of global climate change now threaten many of these gains.

This section examines the scope of the Maldives' obligations under the core international human rights conventions with respect to the human impacts of climate change. **While all human rights are implicated by climate change, given that it affects the totality of the living space where human existence unfolds, certain human rights are particularly vulnerable to climate change** and receive focused attention. This section also presents some of the measures that the Maldives has undertaken to protect and ensure the rights threatened by climate change.

Collective Rights Impacted by Climate Change: Right to Self-Determination and to a Means of Subsistence

While much of the body of international human rights law is directed toward the protection of the individual, international human rights conventions also recognize the rights of a people collectively. Such collective rights cannot, by their nature, be enjoyed by an individual without the participation of the larger group. Climate change, because of the severity and global scope of its impacts, threatens the collective rights of the Maldivian people in a manner unprecedented by any other environmental harm.

The right of all peoples to self-determination is recognized in Article 1 of both the ICCPR and the ICESCR, and in Articles 1 and 55 of the UN Charter. The obligation to respect the right to self-determination furthermore has the status *erga omnes* in international law.¹³⁷ Further, the right to self-determination is “an essential condition for the effective guarantee and observance of individual human rights and for the promotion and strengthening of those rights” and therefore

¹³⁵ The Special Rapporteur on the independence of judges and lawyers, while noting that reforms were necessary to attain judicial independence, concluded that the Constitutional reform would be a critical step in the right direction. UN Press Release “United Nations Expert Supports Constitutional Reform to Establish an Independent Judiciary in the Maldives” (2007) (“All sectors of Maldivian society are conscious of the need for reform...The Government authorities are committed to a far-reaching reform of the Constitution, and the various leading members of the opposition with whom the Special Rapporteur met are also convinced that there is no way these reforms can be delayed.”).

¹³⁶ Recent annual reports from the US State Department have concluded that “the government’s human rights record continued to improve...” although they also document a number of areas where further improvement is needed. Reports available at: <http://www.state.gov/g/drl/rls/hrrpt/2007/>.

¹³⁷ See e.g., ICJ Opinion on the Wall para 155. In the context of applying the principle to colonial situations, the ICJ has suggested the right to self-determination is *jus cogens*. East Timor (Port. v. Austl.), 1995 I.C.J. 102 (June 30) (stating that the right of self-determination is one of the “essential principles of contemporary international law”); See also Ian Brownlie, Principles of Public International Law 671 (2d ed., Williams Clowes 1973) at 513.

enjoys a special status among human rights.¹³⁸ The inclusion of the right to self-determination in both the ICCPR and the ICESCR indicates that its importance spans all political, civil, economic, social, and cultural rights.¹³⁹ The Committee on the Elimination of Racial Discrimination (CERD) has provided a detailed interpretation of the right to self-determination, as enshrined in the UN Charter, ICCPR, and ICESCR. According to the CERD, the right to self-determination has an internal aspect, “the rights of all peoples to pursue freely their economic, social and cultural development without outside interference”, and an external aspect, “the right [of peoples] to determine freely their political status and their place in the international community based upon the principle of equal rights.”¹⁴⁰ Thus, self-determination encompasses the rights of minority groups to recognition within a State, as well as the rights of peoples to be recognized as a State vis-à-vis the rest of the international community.

An important element of the right to self-determination, expressed in both the ICCPR and the ICESCR, is that a people must not be deprived of its own means of subsistence. While the full scope of the right to a means of subsistence has not been as well elaborated as other rights under ICCPR¹⁴¹, the HRC has recognized that the denial of adequate land and resources to a people is incompatible with Article 1 of the ICCPR.¹⁴²

For many peoples, the right to self-determination manifests in the formation of a sovereign State. The State is the primary guarantor and source of protection for political, civil, economic, social, and cultural freedoms.¹⁴³ The permanent loss of statehood, without a successor State to take its place, violates a people’s right to self-determination. Without a State, there is no framework for the protection or realisation of all other human rights.

¹³⁸ Human Rights Committee, General Comment 12, Article 1. (Twenty-first session, 1984), Compilation of General Comments and General Recommendations Adopted by Human Rights Treaty Bodies, U.N. Doc. HRI/GEN/1/Rev.1 at 12 (1994) (“It is for that reason that States...placed this provision as article 1 apart from and before all of the other rights in the two Covenants.”). See also, *Lubicon Lake Band v. Canada*, Communication No. 167/1984 (26 March 1990), U.N. Doc. Supp. No. 40 (A/45/40) at 1 (1990), para. 6.3.

¹³⁹ S. Joseph et al, *The International Covenant on Civil and Political Rights: Cases, Materials and Commentary*, 2004.

¹⁴⁰ Committee on the Elimination of Racial Discrimination, General Recommendation 21, 1996.

¹⁴¹ Complaints addressing violations of collective rights under Article 1 have been excluded as inadmissible under the Optional Protocol of ICCPR, and this has contributed to the lack of development of the scope of the right. See *Lubicon Lake Band v Canada*, Communication No. 167/1984, Views adopted on 26 March 1990. (“the question whether the Lubicon Lake Band constitutes a “people” is not an issue for the Committee to address under the Optional Protocol to the Covenant”).

¹⁴² See HRC, Concluding Observations on Canada UN doc. CCPR/C/79/Add. 105 (1999) (emphasizing that the right to self-determination of aboriginal peoples requires that they may not be deprived of their own means of subsistence).

¹⁴³ In this way, the collective right to self-determination can be linked to the individual right to nationality articulated in the UDHR. Article 15 of the UDHR states, “Everyone has the right to a nationality. No one shall be arbitrarily deprived of his nationality”

If climate change continues unmitigated, sea-level rise is expected to result in the total inundation of the Maldives. Climate change thus destroys one of the hallmarks of statehood: its territory.¹⁴⁴ Additionally, the combination of sea-level rise, rising temperatures, and extreme weather events threatens to render the islands uninhabitable at even partial levels of flooding; the natural resources of the islands, including freshwater, cultivable land, and available land for settlement, would no longer be capable of supporting the population of the Maldives. The peoples of small, isolated islands who are dependent on local agriculture and fishing could be deprived of their means of subsistence well before the islands are fully inundated. For these reasons, climate change impacts constitute a threat to the enjoyment of the right of the Maldives' people to self-determination.

Article 1 has been interpreted as imposing obligations on all States to take positive action toward the realization of the right of self-determination.¹⁴⁵ The Maldives has begun to explore and implement actions to respond to these threats. Adaptation measures are being designed and implemented to slow the inundation of the islands and to preserve the natural resources that allow the islands to be habitable. However, the Maldives is unable to fully protect its territory from catastrophic climate change impacts. To-date, no adaptation measure has been identified that can eliminate the risk of inundation if the likely scenarios of sea-level rise are realised.

Mitigation of climate change through the reduction and stabilization of GHG emissions can prevent the climate change impacts that threaten the land and sovereignty of the Maldives. However, Small Islands States as a whole emit less than 1% of global GHG emissions, and, the Maldives' own contribution to the climate change problem is negligible. The Maldives therefore has little capacity to slow or reverse the impacts of climate change in diminishing and extinguishing its territory without international cooperation.

Civil and Political Rights Impacted by Climate Change

Article 2 of the ICCPR states that "Each State Party to the present Covenant undertakes to respect and to ensure to all individuals within its territory and subject to its jurisdiction the rights recognized in the present Covenant...." State Parties must further take steps to adopt laws or other measures so as to give effect to the rights in the Covenant. The Human Rights Committee (HRC) has interpreted this provision to impose both negative and positive obligations on State Parties; States must refrain from violating rights as well as take appropriate measures to fulfil their legal obligations. These positive obligations include the protection of rights under the

¹⁴⁴ The Montevideo Convention sets out four criteria of statehood, including a defined territory. Convention on the Rights and Duties of States, Signed at Montevideo, 26 December 1933, Entered into Force, 26 December 1934, Art. 1.

¹⁴⁵ Human Rights Committee (HRC) General Comment 12, 1984.

ICCPR from violation by private entities. A failure to exercise due diligence in the prevention or redress of harms caused by other entities can give rise to violations of the ICCPR.¹⁴⁶

Right to Life

Scope of Obligations

The right to life is protected within Article 6 of ICCPR and also in numerous other international and regional human rights instruments.¹⁴⁷ It has been recognized as a supreme right from which no derogation is permitted, even in the case of a public emergency.¹⁴⁸ The right to life is most clearly implicated when the State itself is involved in the use of lethal force against those within its jurisdiction. However, the HRC has cautioned against an overly narrow interpretation of this right, and has indicated a State must take positive measures beyond protection against arbitrary killing. For example, the HRC has stated it would be “desirable for States parties to take all possible measures” to reduce death from environmental factors such as malnutrition and epidemics.¹⁴⁹ Moreover, where a State has failed to protect individuals from certain imminent environmental threats to life, the State may be in violation of its obligations under ICCPR.¹⁵⁰ There are, however, limits to State obligations under ICCPR with respect to indirect threats to life; it must be clear that an act or omission of a State party adversely affected the enjoyment of the right to life for a violation to exist.¹⁵¹

The Special Rapporteur on Human Rights and Environment concluded that the right to life imposes strict duties on a State to prevent and safeguard against the occurrence of environmental

¹⁴⁶ HRC General Comment No. 31, 2004.

¹⁴⁷ Article 6 of the Convention of the Rights of the Child (recognizing an inherent right to life and ensuring to the maximum extent possible the survival and development of the child); Article 2 of the European Convention on Human Rights; Article 1 of the American Declaration of the Rights and Duties of Man; Article 4 of the American Convention on Human Rights; and Article 4 of the African (Banjul) Charter on Human and Peoples’ Rights.

¹⁴⁸ HRC General Comment No. 6, 1982.

¹⁴⁹ HRC General Comment No. 6, 1982.

¹⁵⁰ In response to a communication addressing the storage of radioactive waste in a Canadian town, the HRC recognized the waste storage raised serious issues in regard to the State obligation to protect human life. *E.H.P. v Canada* Communication No. 67/1980 U.N. Doc. CCPR/C/OP/1 at para 8 (1994)(dismissed for other reasons) Another communication addressing nuclear testing was also found inadmissible, but the HRC nonetheless made a point to state that such acts could have implication on the right to life. *Bordes and Temeharo v France*, Communication No. 645/1995, U.N. Document CCPR/C/47/D/645/1995 at para 5.9. (“it is evident that the designing, testing, manufacture, possession and deployment of nuclear weapons are among the greatest threats to the right to life which confront mankind today”).

¹⁵¹ *See, e.g., Plotnikov v Russian Federation* Communication No. 74/1997 U.N. Doc. CCPR/C/65/D/784/1997 (dismissing a complaint that inflation threatened the right to life because complainant lacked money for medicine); *Aalbersberg et al. v the Netherlands*, Communication No. 1440/2005, U.N. Document CCPR/C/87/D/1440/2005 at para 6.3 (dismissing claims related to nuclear weapons as inadmissible because the authors were not facing an imminent threat to their lives).

hazards that threaten the lives of human beings, meaning that State responsibility arises regardless of whether an act or omission is deliberate, reckless, or merely negligent.¹⁵² Following this view, the duty to protect the right to life would entail an obligation of the State to establish and operate adequate monitoring and early-warning systems to detect environmental hazards before they threaten human survival.

Obligations under the CRC to protect the life of a child extend even more broadly than obligations under ICCPR. Under Article 6.2 of the CRC, a State Party must ensure not only the survival, but also the development of the child “to the maximum extent possible.” Unlike the ICCPR, however, the right to life under the CRC is considered as containing aspects of both a civil and political right and an economic, social, and cultural right (ESCR).¹⁵³ As such, the obligations concerning the ESCR are subject to the practical limits of the resources available to the State.¹⁵⁴

The European Court of Human Rights (ECHR) has also addressed the linkages between human rights and environmental protection, as well as the duties incumbent upon States to prevent their affection by private industry.¹⁵⁵ In *Oneriyildiz v. Turkey*, the Grand Chamber of the ECHR observed that the positive obligation to take all appropriate steps to safeguard life “entails above all a primary duty on the State to put in place a legislative and administrative framework designed to provide effective deterrence against threats to the right to life.”¹⁵⁶

The Maldives has positive obligations under both the ICCPR and the CRC to protect and fulfil the right to life in the face of climate change impacts. For the large number of people living close to the shoreline and exposed to strong waves and winds, the right to life is undermined by rising sea-levels and the increased likelihood and magnitude of sea surges and extreme weather events. Increased rates of disease linked to climate change also undermine the right to life. These threats are exacerbated by a number of indirect factors, including the loss of local food and freshwater sources that are necessary to human survival. The uneven distribution of sanitation, water, and medical services throughout the atolls may indicate that certain populations face heightened risks of death as a result of climate impacts.

¹⁵² F.Z. Ksentini, Final Report of the Special Rapporteur, Human Rights and the Environment, 1994.

¹⁵³ Committee on the Rights of the Child (CRC) General Comment 5, 2003.

¹⁵⁴ Article 4 of CRC states “With regard to economic, social and cultural rights, States Parties shall undertake such measures to the maximum extent of their available resources and, where needed, within the framework of international cooperation.” The Article has been interpreted similarly to 2 of ICESCR. See CRC General Comment 5 UN Document CRC/GC/2003/5 (2003) at para 7-8.

¹⁵⁵ See *Fadeyeva v. Russia*, Eur. Ct. H.R., June 9, 2005, at ¶ 89, available at <http://www.echr.coe.int/echr>. See generally, Loukis Loucaides, *Environmental Protection through the Jurisprudence of the European Convention on Human Rights*, 2004 BRIT. Y.B. INT’L L. 249.

¹⁵⁶ *Oneriyildiz v. Turkey*, 39 Eur. H.R. Rep 12 (2004), at ¶¶ 89, 90.

Following the HRC interpretation of Article 6 of the ICCPR, the Maldives must act to prevent environmental harm that threatens the survival of an individual where the harm is imminent. There is a known link between rising sea-levels, extreme weather events, and the occurrence of the violent sea surges that threaten the lives of individuals.¹⁵⁷ Sea-levels have already risen in the Maldives, and are expected to continue to rise. The threat to life from the occurrence of sea surges is therefore already imminent. The threat to the right to life from disease is already present in the Maldives. Illnesses such as dengue and scrub typhus have recently emerged and have caused deaths. The immediacy of these threats indicates that positive action must be taken to ensure the full enjoyment of the right to life.

Children are likely to be especially vulnerable to the impacts of climate change on the right to life. Young children are more susceptible to injury and drowning during violent sea surges. Children are also at greater risk of death as a result of diseases such as malaria, dengue, and diarrhoea, while the development of the child is threatened by malnutrition and lack of water for safe drinking water and sanitation. Under the CRC, the Maldives must take all appropriate measures to the maximum of its resources available to protect the survival and development of the child from these threats.

Measures to Protect and Ensure the Right to Life

The Maldives Government enjoys a broad discretion in determining the measures that are most appropriate to fulfil its obligations to ensure the right to life. Infrastructure, such as seawalls, can be employed to protect the Maldives people from the impact of intensifying sea surges. In 2002, the Government completed construction of a 3-meter sea wall around the capital Male' with the assistance of the Japanese Government. The sea wall is attributed with saving Male' from the massive destruction experienced by other unprotected atolls during the Tsunami in 2004.

Early storm and disaster warning systems can also alert the public to pending harm, thereby reducing the loss of life during an event. The Maldives has recently participated in regional efforts to put in place such a disaster warning system.¹⁵⁸ The Government has also put in place plans to develop a nationwide early warning and emergency telecommunications system by late 2008.¹⁵⁹ The Maldives has equally developed its capacity for disaster response, establishing a now permanent National Disaster Management Centre in 2004. The Centre was created to fill the

¹⁵⁷ According to the NASA World Book entry on hurricanes, "The most dangerous effect of a hurricane, however, is a rapid rise in sea level called a storm surge. A storm surge is produced when winds drive ocean waters ashore. Storm surges are dangerous because many coastal areas are densely populated and lie only a few feet or meters above sea level." Available at: http://www.nasa.gov/worldbook/hurricane_worldbook.html.

¹⁵⁸ USAID, US Indian Ocean Tsunami Warning System Programme, 2007.

¹⁵⁹ Telecommunications Authority of the Maldives (TAM), Emergency Telecommunications initiatives for Disaster Management in Maldives, 2006.

need for a single institution with a mandate to coordinate disaster-related activities, and it has worked prolifically in producing disaster risk assessment and disaster preparedness reports.¹⁶⁰

Other measures to protect and ensure the right to life could include improvements in the Maldives' medical services and infrastructure and other public services so as to be able to better respond to the added burdens of injury and disease caused by climate change. Additionally, the most at-risk populations can voluntarily be relocated to sites that enjoy greater protection from sea surges, less threat of extreme weather events, and greater access to medical and other services. The Maldives has initiated a policy of voluntary population consolidation since 1998, when it was recognized that a policy focused on the provision of infrastructure and services across all atolls was not feasible. With small groups of people living across numerous, highly dispersed islands, the cost to provide services in outer atolls becomes prohibitively high. Consolidation of the population to a few larger islands increases access to infrastructure and services, and ensures better protection of the rights of individuals. While the policy was initially implemented in response to development needs, the Government has since expanded the policy to respond to the threats posed by climate change. The Maldives' "Safer Islands Strategy" incorporates consideration of climate risks into the policy, ensuring that the safer islands have protective features, such as improved coastal protection, elevated public buildings for vertical evacuation, emergency supplies, an appropriate harbour, and more reliable communications systems.¹⁶¹

These measures, however, only represent temporary protections from the still emerging effects of climate change. The Maldives will be incapable of protecting the lives of its citizens from the likely scenarios of climate change if GHG emissions continue to grow unmitigated. As climate change brings unprecedented effects on sea-level and weather systems, technology and adaptation methods may not yet exist to adequately protect human life from the most severe effects of climate change.

As noted above, mitigation remains the only known means to fully prevent the catastrophic impacts of climate change. The critical decisions on mitigation, however, do not lie within the control of the Maldives, but rather within the power of the largest GHG emitting countries. The full protection of the right to life from climate change impacts therefore depends upon the actions of the international community.

The Right to Property

Scope of Obligations

¹⁶⁰ The National Disaster Management Centre website includes information on the Maldives activities in disaster preparedness. Available at: <http://www.ndmc.gov.mv/index.php>.

¹⁶¹ MPND, 2007.

The Universal Declaration of Human Rights proclaims that “(1) Everyone has the right to own property alone as well as in association with others; and (2) No one shall be arbitrarily deprived of his property.” Other international instruments that provide for the right include the Convention on the Elimination of All Forms of Discrimination against Women (articles 15 and 16) and ILO Convention 169 Concerning Indigenous and Tribal Peoples in Independent Countries. Article 15(2) of ILO 169 provides: “States Parties shall accord to women, in civil matters, a legal capacity identical to that of men and the same opportunities to exercise that capacity. In particular, they shall give women equal rights to conclude contracts and to administer property and shall treat them equally in all stages of procedure in courts and tribunals.” Article 16(1) (h) provides that in eradicating discrimination State Parties should guarantee women and men “the same rights for both spouses in respect of the ownership, acquisition, management, administration, enjoyment and disposition of property, whether free of charge or for a valuable consideration.”

Regional instruments such as the European Convention on Human Rights and the African Charter on Human and Peoples’ Rights also contain the right to property. The European Convention provides that: “Every natural or legal person is entitled to the peaceful enjoyment of his possessions. No one shall be deprived of his possessions except in the public interest and subject to the conditions provided for by law and by the general principle of international law.”¹⁶² Article 14 of the African Charter provides: “The right to property shall be guaranteed. It may only be encroached upon in the interest of public need or in the general interest of the community and in accordance with the provisions of appropriate laws.”¹⁶³

The American Declaration on the Rights and Duties of Man¹⁶⁴ includes the right to “own such private property as meets the essential needs of decent living and helps to maintain the dignity of the individual and of the home.” The Inter-American Commission on Human Rights acknowledged the fundamental nature of this right when it stated, “[v]arious international human rights instruments, both universal and regional in nature, have recognized the right to property as featuring among the fundamental rights of man.”¹⁶⁵ Similarly, the American Convention on Human Rights declares that “[e]veryone has the right to the use and enjoyment of his property....

¹⁶² Convention for the Protection of Human Rights and Fundamental Freedoms, Nov. 4, 1950, 213 U.N.T.S. 221 (“European Convention”), Protocol 1, Article 1.

¹⁶³ African [Banjul] Charter on Human and Peoples' Rights, adopted June 27, 1981, OAU Doc. CAB/LEG/67/3 rev. 5, 21 I.L.M. 58 (1982), *entered into force* Oct. 21, 1986.

¹⁶⁴ “Both the Inter-American Court and the Inter-American Commission on Human Rights have held that, although originally adopted as a declaration and not as a legally binding treaty, the American Declaration is today a source of international obligations for the OAS member States.” Inter-Am. Court H.R., Advisory Opinion OC-10/89, Interpretation of the American Declaration of the Rights and Duties of Man Within the Framework of Article 64 of the American Convention on Human Rights, July 14, 1989, Ser. A. No. 10, at ¶¶ 35, 45 (1989).

¹⁶⁵ Inter-Am. C.H.R., Annual Report of the Inter-American Commission on Human Rights 1993, OEA/Ser.L/V/II.85, doc. 9 rev. (1994) Ch. 6 at 464.

No one shall be deprived of his property except upon payment of just compensation, for reasons of public utility or social interest, and in the cases and according to the forms established by law.”¹⁶⁶ In the *Awasi Tingni* case, the Court defined property to include those material goods capable of being acquired, as well as all rights that can be deemed to make up the assets of a person. Protected property includes, “those material things which can be possessed, as well as any right which may be part of a person’s patrimony; that concept includes all movables and immovables, corporeal and incorporeal elements and any other intangible object capable of having value.”¹⁶⁷

The Maldivians’ right to property is thus guaranteed by international human rights instruments; consequently the Government has the obligation to respect the right to property and to ensure that Maldivians are not arbitrarily deprived of this right. Increased incidences of flooding have interfered with the homes and the land that the citizens of the Maldives own and reside on. The forceful relocation from their regular homes as a consequence of sea-level rise interferes with their way of life and the property they own. Subsistence farming is difficult due to the danger, inconvenience and anxiety associated with climate change as well as decrease in soil fertility associated with salination from the sea water. The fertility of the land is declining and thus is losing its value. Deprivation of the use and enjoyment of land through climate change is occurring, therefore, and threatens the Maldivians’ human right to property.

Measures to protect and ensure the right to property

Climate change poses a threat to real property ownership in the Maldives and interferes with the value of Maldivians’ personal property. The intangible property of knowledge faces becoming valueless as the island nation faces extinction. Maldivians’ ability to live dignified lives by providing for their own housing and their own means of sustenance and livelihood is also diminished. For example, the Government has begun exploring the possibilities of relocating local communities to safer islands, and is offering housing and other infrastructure to help with the relocation process. Programmes could also address ways to preserve cultural heritage as well as traditional means of sustenance and knowledge. Also, adaptation measures such as sea-barriers could be constructed to shield houses and agricultural plots from the influx of sea-water. A relocation fund could be set up to provide further assistance for relocation to populations who have lost their housing and land.

¹⁶⁶ Article 21 of the American Convention on Human Rights, O.A.S.Treaty Series No. 36, 1144 U.N.T.S. 123, entered into force July 18, 1978, reprinted in Basic Documents Pertaining to Human Rights in the Inter-American System, OEA/Ser.L.V/II.82 doc.6 rev.1 at 25 (1992).

¹⁶⁷ *Caso de la Comunidad Mayagna (Sumo) Awasi Tingni* (“*Awasi Tingni*”), Inter-Am. Ct. H.R. Ser. C, No. 79.

Economic, Social, and Cultural Rights Impacted by Climate Change

Article 2 of the ICESCR sets out the obligation of a Party to work toward the progressive implementation of the rights under the Covenant. The ICESCR recognizes that economic, social, and cultural rights cannot be guaranteed immediately; instead each Party agrees to “take steps... to the maximum of its available resources” and “all appropriate means” to achieve the full realization of the covered rights. The Committee on Economic, Social, and Cultural Rights has emphasized that the language of the ICESCR does impose immediate obligations on the Parties to take deliberate, concrete, and targeted actions toward the realization of the rights. Even where resources are scarce, vulnerable members of society must be protected by relatively low-cost measures.¹⁶⁸

Other international human rights conventions also address economic, social, and cultural rights. These obligations at times exceed the scope of those set-out within the ICESCR. For example, the CRC recognizes the special needs and vulnerabilities of the child, and therefore affords a greater level of protection for many of the child’s economic, social, and cultural rights.¹⁶⁹ Similarly, the CEDAW recognizes the contribution of women to society and the welfare of the family, and emphasizes and expands upon certain economic, social, and cultural rights accordingly.

The Right to Food

Scope of Obligations

The right to food is addressed in several international human rights conventions¹⁷⁰, and has been further recognized in subsequent declarations made by the international community.¹⁷¹ The right to food contains both a progressive element to ensure the right of everyone to adequate food, as well as the more immediate and urgent obligation to ensure freedom from hunger and malnutrition. Under the ICESCR: “States have a core obligation to take the necessary action to mitigate and alleviate hunger ... even in times of natural or other disasters.” If individuals are

¹⁶⁸ Committee on Economic, Social and Cultural Rights (CESCR) General Comment 3, 1991.

¹⁶⁹ The Preamble of the CRC recalls that “the child, by reason of his physical and mental immaturity, needs special safeguards and care”

¹⁷⁰ Article 25 UDHR (right to adequate standard of living, including food); ICESCR Article 11.1 and 11.2; CEDAW Article 12 (adequate nutrition during pregnancy and lactation); Article 24 CRC (combat malnutrition and provide adequate nutritious foods).

¹⁷¹ In the Rome Declaration on World Food Security, Heads of State and Government “reaffirm[ed] the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger.” The Millennium Development Goals included the goal to halve the proportion of people in the world suffering from hunger. In 2004, FAO released the Voluntary Guidelines on the Right to Adequate Food.

unable to enjoy the right to food for reasons beyond their control, the State must provide that right directly.¹⁷² The right to food is concerned not only with the individual's lack of food, but also a lack of access to food because of physical or economic reasons. For access to food to be adequate, it must be accessible in a sustainable manner, so that food is available for both present and future generations.¹⁷³ The number of people experiencing food insecurity and malnutrition in the Maldives has declined during recent years of economic growth. Climate change, however, threatens to undermine this progress. Extreme weather and flooding events can destroy local supplies of food and cut-off outside supplies of food. Without prompt relief efforts, the people of outer islands in particular are in danger of suffering from hunger and chronic malnutrition. In the aftermath of such events, island people who depend on local agriculture to supplement their diets are at a risk of higher rates of malnutrition. This risk will be exacerbated where the main sources of income, such as traditional fishing, are lost in the aftermath of an event.

Climate change impacts also dramatically undermine the food security of the Maldives as a whole. The scarcity of land and poor soil quality already limit the ability of the Maldives to support its own food needs. Erosion, salination of land and water, and changes in precipitation are expected to further reduce the viability of agriculture in the Maldives. If tuna fisheries are impacted by changes in sea temperatures as scientists predict, the Maldives will lose its primary source of local nutrition. The high dependence on external food sources - which will increase with the decline in domestic sources - means the Maldivian people are extremely vulnerable to global food price shocks and shortages. The risk of food price increases is also linked to the impacts of climate change on global agricultural production; if global agricultural productivity declines, it is the poor food-importing countries like the Maldives that will be hit hardest by increased prices.¹⁷⁴ The U.N. Special Rapporteur on the Right to Food has most recently called attention to the world food crisis and concluded that it "imposes on all States an obligation to act, and to act without delay," specifically "to adopt measures which will better shield the most vulnerable segments of the population...from shocks."¹⁷⁵ Climate change will deeply impact agricultural production not only within the Maldives but also at the global-level. Both factors undermine the capacity of the Maldives to attain the food security that insulates Maldivians from the effects of global foods shocks and ensures a full enjoyment of the right to food.

¹⁷² CESCR General Comment 12, 1999.

¹⁷³ CESCR General Comment 12, 1999.

¹⁷⁴ A UNDP study concludes that the number of people at risk of hunger by 2080 as a result of climate change could total 600 million, while a study conducted by the Center for Global Development and the Peterson Institute for International Economics predicts global agricultural capacity could decline by between 3-16%. Olivier de Schutter, "Background Note: Analysis of the World Food Crisis" New York. May 2, 2008. The World Bank has also reported that food prices may reverse their downward trend and threaten global food security. World Bank, *World Development Report 2008: Agriculture for Development*, Washington D.C. (2007) at 8.

¹⁷⁵ Olivier De Schutter, Background Note: Analysis of the World Food Crisis, 2008.

Measures to Protect and Ensure the Right to Food

Measures are necessary to respond to climate change impacts with respect to both aspects of the right to food, i.e. to ensure immediate freedom from hunger and progressive access to adequate food. To ensure the right to be free from hunger, a system for food relief must be available in the case of food crises, such as may occur during extreme weather and flooding events. The actions of the Maldives in response to the Tsunami in 2004 demonstrate the type of measures necessary to secure the right to food during a natural disaster. The Government responded within days of the disaster by creating the National Disaster Management Centre. Through the Centre, the Government successfully coordinated rapid relief efforts and the contributions of multiple international organizations and donors to provide emergency food supplies in a timely manner.¹⁷⁶ The Centre is poised to take on this role in the case of climate change-related disasters. Additionally, the Government implemented a “Livelihood Revitalization and Development Programme” to provide grants and loans to those in the fisheries, agricultural, and trade sectors impacted by the Tsunami, to promote the longer-term recovery of these livelihoods in the islands.¹⁷⁷ Indirectly, the right to food is also supported by projects to improve maritime transport to the outer islands, as this decreases the likelihood of food crises as a result of disrupted food supplies. The Maldives has initiated a project with the Asian Development Bank to improve harbour infrastructure and facilitate travel to outer islands.¹⁷⁸

Steps must also be taken to improve the level of food security, to ensure that food is accessible, physically and economically, in a sustainable manner throughout the Maldives. Measures to adapt local agricultural practice to the changing environment, enhance fisheries conservation, increase stocks of imported foods, and encourage the diversification of local diets can all reduce the vulnerability of the population to food shock. The Maldives has taken steps to improve food security and ensure the right to food. The hydroponics pilot program and fisheries technology research implemented by the Ministry of Fisheries, Agriculture, and Marine Resource are examples of measures that contribute to food security. The Ministry has also collaborated closely with the Food and Agricultural Organization on a number of projects to improve local food security, such as small scale commercial poultry, production of coconut oil, and assistance in drafting agricultural legislation.¹⁷⁹

¹⁷⁶ UNDP, 2006.

¹⁷⁷ Island Livelihood Revitalization and Development Programme (ILRDP) - March 25, 2005 Ministry of Finance and Treasury. Available at: <http://www.ndmc.gov.mv/>.

¹⁷⁸ Asian Development Bank “Domestic Maritime Transport Project” Project No. 37265 Loan Approved: March 2008. Available at: <http://www.adb.org/maldives/default.asp>.

¹⁷⁹ Further information regarding these projects is provided on the FAO website. Available at: <http://www.fao.org/countryprofiles>.

The Right to Housing

Scope of Obligations

A number of international agreements enshrine the right to housing.¹⁸⁰ Article 11.1 of the ICESCR includes the right to adequate housing within the right to an adequate standard of living. The right to housing has been interpreted broadly to mean more than a narrow right to shelter, and to include “the right to live somewhere in security, peace and dignity.”¹⁸¹ The right to housing includes the access to the determinants of safe and secure living conditions, as is set out explicitly in some international human rights covenants. Article 14.2 of CEDAW, for example, sets out the right of women to “enjoy adequate living conditions, particularly in relation to housing, sanitation, electricity and water supply, transport and communications.”

Adequate housing must, among other criteria, be habitable and must protect from environmental harms such as “cold, damp, heat, rain, wind or other threats to health, structural hazards, and disease vectors.”¹⁸² The cost of housing must not be so high as to inhibit the fulfilment of other basic needs; where housing is prohibitively expensive the State has a duty to provide financial support to those unable to attain affordable housing. Special priority in housing law and policy should be afforded to disadvantaged groups of people, including those living in disaster prone areas.¹⁸³ In a recent report, the Special Rapporteur on Adequate Housing, Miloon Kothari, concluded that international human rights law imposes an obligation on the State to respond to the threat of climate change and specifically “to improve access to housing located away from hazardous zones.”¹⁸⁴

Climate change impacts have already undermined the enjoyment of the right to housing in the Maldives, as sea-level rise and extreme weather events endanger the security of homes located in close proximity to the coast. As flooding of the islands becomes more severe, the homes on vulnerable islands risk being rendered uninhabitable. The physical structure of the housing is susceptible to damage, as well as the basic services such as electricity, water supply, and sanitation that are essential elements of the right to adequate housing. Many homes have already been damaged from recurrent flooding, and ongoing coastal erosion reduces the land that serves as a buffer between the sea and coastal settlements. Moreover, because of the small-size and low

¹⁸⁰ Article 25.1 of the UDHR; Article 11.1 of the ICESCR; Article 5 of the ICERD; Article 14.2 of the CEDAW; Article 27 of CRC.

¹⁸¹ CESCR General Comment 4, 1991.

¹⁸² CESCR General Comment 4, 1991.

¹⁸³ CESCR General Comment 4, 1991.

¹⁸⁴ Miloon Kothari, Report of the Special Rapporteur on Adequate Housing as a Component of the Right to an Adequate Standard of Living, 2008.

elevation of the islands, there is very little land in the Maldives that is secure from the risks posed by sea-level rise and extreme weather events.

Measures to Protect and Ensure the Right to Housing

There are a number of policies that can work to ensure the full enjoyment of the right to housing, including the movement of populations away from the coastline, adoption of measures to reduce human causes of coastal erosion, implementation of coastal zone management, transition to the use of safer building materials, and improvement of the security of sanitation, water, and electricity services from climate impacts. The Maldives has taken steps to ensure access to homes that are safe and secure from climate change risks. In the aftermath of the Tsunami, the Government adopted the guiding principle coined by the United Nations of “Building Back Better” and implemented a policy to provide each displaced family with a house constructed of durable materials. While implementation of the policy has, in some cases, fallen behind schedule, the housing provided has been built to comply with stringent requirements for safety and security. The new housing complies with ventilation, roofing, and toilet facility specifications and takes into account the threat of future disasters by incorporating deeper foundations and reinforced steel. Some buildings have been designed with multiple stories, or located on land that has been elevated, to provide additional protection from sea surges.¹⁸⁵ The Government has further put in place incentives to encourage the voluntary resettlement of displaced families to selected, safer islands. Such voluntary resettlement contributes to housing security, as these safer islands are the focus of greater investment in coastal protections, electricity, water and sanitation infrastructure, and other public services.

In the long-term, however, the availability of land on the Maldives is a key restraint on the ability of the Government to ensure adequate supply of secure and affordable housing. A number of the most developed islands in the Maldives already have a high population density, and the addition of further populations creates a risk that overcrowding will undermine the enjoyment of the right to adequate housing. In order to overcome this lack of land, adaptation measures are likely necessary to create sites that are safe from worsening climate change impacts. Such measures include the use of sea defences to protect islands, raising the level of certain islands, and the creation of new islands by filling in shallow island lagoons. However, the financial costs of these major infrastructure works are beyond the capabilities of a Small Island Developing State like the Maldives, hence the critical importance of international assistance explored further below.

The Right to Health

¹⁸⁵ Maldives Ministry of Foreign Affairs (MMFA), Tsunami Recovery and Reconstruction: Building Back Better, 2007.

Scope of Obligations

Article 12 of the ICESCR affords the right to the “highest attainable standard of physical and mental health.” The obligation of the State extends to both preventing exposure to health hazards, and improving the capacity of individuals to cope with health hazards.¹⁸⁶ For example, Article 12 explicitly refers to taking steps toward, *inter alia*, reduction of infant mortality, the healthy development of the child, the prevention, treatment, and control of all preventable diseases, and ensuring access to medical services. Moreover, the Committee on Economic, Social, and Cultural Rights (ESCR Committee) has clarified that the right to health is not merely a right to healthcare, but includes a range of factors necessary to lead a healthy life, such as food, nutrition, housing, access to safe water, and a healthy environment. As part of the obligation to fulfil the right to health, Parties must ensure provision of health care, the appropriate training of doctors and medical personnel, provision of a sufficient number of medical facilities, and equal access to the underlying determinants of health.¹⁸⁷ Article 24 of the CRC further emphasizes the rights of the child to the highest attainable standard of health, stating that “State Parties shall take appropriate measures...to ensure the provision of necessary medical assistance and health care to all children...”

Climate change impacts are expected to increase the exposure of Maldivians to health hazards and undermine the key determinants of health, including clean water, safe housing, and sanitation facilities. Changes in temperature and precipitation may have already contributed to the emergence and re-emergence of diseases in the Maldives. New rates of exposure and transmission of disease result from the displacement and resettlement caused by extreme weather events and flooding. The lack of clean water and contamination of the environment from failed sanitation infrastructure also increase the likelihood that individuals will be infected by preventable diseases. All of these effects increase the need for medical infrastructure and resources, to both prevent diseases and treat them.

Measures to Protect and Ensure the Right to Health

To protect and ensure the right to health, medical resources must be dedicated to respond to climate change-related threats. Measures to fulfil this obligation could include preparing existing resources for the new challenges of climate change, through trainings, risk assessments, and new health policies. Increasing the number and distribution of trained healthcare providers and facilities is also desirable. In the face of resource constraints, improving the mobility of existing medical services or encouraging the consolidation of isolated portions of the population to more accessible areas can also facilitate adequate access to healthcare. Health education campaigns

¹⁸⁶ Katarina Tomasevski, *Economic, Social and Cultural Rights: A textbook*, 1995.

¹⁸⁷ Including: “nutritiously safe food, potable drinking water, basic sanitation, and adequate housing and living conditions” (CESCR General Comment 14, 2000).

can complement the mobilization of resources and new health policies, ensuring individuals take actions to prevent exposure to health hazards.

The Maldives has emphasized its dedication to the provision of healthcare and the protection of health from climate change effects in its Health Master Plan of 2006-2015. The Plan includes strategies to develop adaptation measures, including the development of disaster preparedness and emergency response plans for the health sector. The Plan also targets diseases that may be linked to climate change effects, with an aim to reduce mortality from dengue and the prevalence of diarrhoea to less than 1% by 2015. To achieve these targets, strategies to increase access to healthcare at the island-level have been identified, including increasing the number of facilities with trained staff and equipment, improving transport mechanisms for patient evacuation and referral, providing incentives to medical staff working in the atolls, and using distance learning techniques to improve the training of local medical staff. Additionally, the Maldives finalized its National Medicine Policy in March 2007, which provides guidance on the development of an uninterrupted supply of effective and affordable essential medicines throughout the atolls. Government expenditures of the healthcare system have remained consistently high, and the Maldives has committed to increasing and sustaining these levels of expenditure through to 2015.¹⁸⁸

The Right to Water

Scope of Obligations

The right to water is not explicitly mentioned in the ICESCR. However, the ESCR Committee has concluded that the right to water is implied in Article 11 as an aspect of the right to an adequate standard of living.¹⁸⁹ In other general comments by the ESCR Committee, access to water has been recognized as necessary to realize the right to life, the right to the highest attainable standard of health, the right to adequate housing, and the right to education.¹⁹⁰ Moreover, treaties subsequent to the ICESCR have explicitly referred to the right to water and sanitation. Article 14.2 of CEDAW refers to “the right to enjoy adequate living conditions, particularly in relation to...sanitation... and water supply.” Article 24 of the CRC recognizing

¹⁸⁸ Maldives Ministry of Health (MMH), *Quality Health Care: Bridging Gaps*, 2006.

¹⁸⁹ CESCR, General Comment 15, 2002.

¹⁹⁰ A core obligation of the right to health is for the State to ensure access to basic sanitation, and an adequate supply of safe and potable water, see Committee on Economic, Social and Cultural Rights, General Comment No. 14: The right to the highest attainable standard of health, UN ESCOR, 2000, para. 43 (c). See also paras. 11, 12, 15, 36. Access to safe drinking water and sanitation is an element of the right to adequate housing, see Committee on Economic, Social and Cultural Rights, General Comment No. 4: The right to adequate housing, UN ESCOR, 1991, UN Doc. E/1992/23, para. 8 (b). Sanitation facilities for both sexes and safe drinking water are required in schools as part of the right to education; see Committee on Economic, Social and Cultural Rights, General Comment No. 13: The right to education, UN ESCOR, 1999, UN Doc. E/C.12/1999/10, para. 6 (a).

the right of the child to the highest attainable standard of health conveys the obligation on a State to take appropriate measures to, *inter alia*, provide clean drinking water. Most recently, the 2007 OHCHR report issued pursuant to Human Rights Council decision 2/104 addressed the scope and content of human rights obligations related to safe drinking water and sanitation under ICCPR and ICESCR. The report concluded, “[t]he United Nations High Commissioner for Human Rights believes that it is now time to consider access to safe drinking water and sanitation as a human right”. The right to water provides for “equal and non-discriminatory access to a sufficient amount of safe drinking water for personal and domestic uses...to sustain life and health.” State Parties have a duty to take measures to fulfil the right to water, including the obligations to facilitate, and promote universal access to water, as well as to provide water for individuals who lack access for reasons beyond their control. Climate change is likely to result in both temporary disruptions of water supply that deprive portions of the population from access to water, as well as the overall reduction in the size of the freshwater lenses available in the islands of the Maldives.¹⁹¹ During an extreme weather or sea event, water supply can be cut off due to the malfunction of desalination plants, damage to rainwater collectors, and contamination of wells. In order to preserve life and health, the Maldives must act immediately to ensure access to safe drinking water for affected populations. The Maldives must further take measures to ensure that dislocated populations are provided with sufficient amounts of water for their basic household needs, including drinking, cooking, and hygiene. The Maldives also has an obligation to take measures to prevent island populations from losing access to safe drinking water because of the shrinking freshwater lens. The availability of water per capita in the Maldives is already well below the threshold level of water scarcity; long periods of drought would threaten the lives and health of those living in atolls that continue to depend on freshwater sources rather than desalinated water.

Measures to Protect and Ensure the Right to Water

The Maldives Government has long been engaged in taking measures to protect and ensure the right to water. Government policy is to ensure that all inhabited islands have water supplies meeting basic requirements for drinking and household use. As far back as 1988, the first

¹⁹¹ A Freshwater Lens is an underground pool of freshwater that takes the shape of a lens. Lenses are critical sources of fresh water on many islands. The freshwater lens is suspended by seawater. For example, when rain falls on a limestone island, it quickly sinks into the porous calcareous rock, picking up a mineral content from the organic material, soil and rock that it passes through. This water accumulates within the rock, continuing its downward path. Eventually, it meets the layer of salt water that permeates limestone platforms at sea level. Because fresh water is less dense than salt water, the lens of fresh water will float on top of the saline groundwater. In many areas, this lens is very thin. If the sea level increases and/or if the lens becomes depleted because of excess withdrawals, seawater can intrude and make the water unsuitable for many uses. The size of the lens is directly related to the size of the island. Larger islands have lenses that are less vulnerable to tidal mixing and excessive withdrawals.

(Source: US National Oceanic and Atmospheric Administration (NOAA).

desalination plant was installed to replace groundwater supplies. The Maldives has managed a sustained campaign to increase the number of households using rainwater collectors and storage tanks in place of shallow wells throughout the atolls. Renewed efforts in this area are required as water resources become further strained as a result of climate change impacts. Existing measures to ensure the right to water must furthermore be evaluated to determine their sustainability in the face of sea-level rise, increased frequency and intensity of extreme weather events, and changes in precipitation levels. Appropriate measures include water management plans, promotion of water collection techniques that are less vulnerable to damage from climate impacts, and investment in infrastructure to increase water supply. Water storage tanks may need to be larger, to ensure access to water in the case of uncertain rainfall patterns, technologically adequate, to prevent them from becoming breeding grounds for mosquitoes, and sturdier, to resist damage during flooding or extreme weather events.

The use of desalination plants for water supply must take into consideration the ability of the poorest segments of society to pay water tariffs. In 1995, the water tariffs from a desalination plant put into operation to supply water to the residents of Male' were the highest in Asia. The use of progressive tariffs, with an increase in tariff rates based on the amount of consumption and the type of use, has been implemented to support the right to water for low income segments of the population. In the atolls, particular efforts must be taken to ensure communities are able to afford water tariffs in connection with the installation and maintenance costs of desalination plants, if these are to play a role in ensuring local water supplies. Desalination units are nonetheless a useful supplement to rainwater collection in the case of emergency or disaster.

In the aftermath of the 2004 Tsunami, steps were taken to further secure the right to water. With assistance from various donor agencies and NGOs, thousands of household and communal rain water tanks were provided to the islands. Moreover, 38 islands were provided with desalination units for operation on a daily or emergency basis.

The Right to Work

Scope of Obligations

The right to work is most comprehensively addressed in the ICESCR within articles 6, 7, and 8. The right to work is of importance not only as a source of income for the individual and his family, but also as a matter of the dignity of the individual and towards the development of society.¹⁹² Through Article 6, State Parties recognize “the right of everyone to the opportunity to gain his living by work which he freely chooses or accepts” and commit to take appropriate steps to safeguard and achieve the full realization of the right. The ESCR Committee has made clear

¹⁹² Machteld Inge Van Dooren, *The right to work: background paper for the Day of General Discussion on the Right to Work*, 2003.

that full realization of the right to work is the attainment of full employment.¹⁹³ Furthermore, the employment available must be *decent* work that respects fundamental human rights. Among other requirements, the labour must not be forced, it must provide an income that allows the worker to earn a living for him or herself and his or her family, and it must respect the physical and mental integrity of the worker. The Committee has recognized that constraints on capacity and other factors beyond the control of the State may hinder full implementation of the right to work. Where resources are limited, States are nonetheless obligated to implement relatively low-cost targeted programmes; especially those directed at the most vulnerable segments of society.¹⁹⁴

Climate change undermines the two largest sectors of the Maldives economy, namely tourism and fisheries. If climate change continues unmitigated, the natural resources upon which these economic activities are based will continue to degrade. Harm to these sectors will threaten the job security of tens of thousands of Maldivians, and eliminate the income that supports the lives of many thousands more. The great risk to these industries is evident by the rise in unemployment that occurred in the aftermath of the 2004 Tsunami.

The impacts of climate change on the employment of already vulnerable groups will be especially acute. Climate change is likely to harm local fishers, who depend on the environmental health of the reefs for their livelihood, more than commercial fisheries. With declines in tourism, local fishers lose one of their major markets and sources of extra income. Agriculture that serves as a supplemental source of employment is also threatened. Maldivians on outer islands have fewer employment options beyond these traditional livelihoods, and rising levels of unemployment are likely without intervention. The unemployment levels of young men and women, already problematic in the Maldives, are likely to grow worse. Youth would be forced to compete with more senior job-seekers who have lost their jobs as a result of climate change impacts to the tourism or fishery sectors.

Measures to Protect and Ensure the Right to Work

In light of the threat posed by climate change to the most critical sources of livelihood, measures are necessary to ensure the right to work. Steps to diversify the economy are critical to ensure the right to work. The Maldives commitment to attaining this right is demonstrated in its 7th National Development Plan for the period 2006-2010, which sets out as its first goal to “create an environment conducive for growth and generating employment.” Toward this goal, the Government is implementing pilot programs, capacity-building, and other forms of support for new employment opportunities. For example, in collaboration with the UNDP, a technical

¹⁹³ This does not however mean that the State must provide employment to each and every person without a job; although creating employment opportunities could constitute one measure by which to ensure the right to work. Van Dooren, 2003.

¹⁹⁴ CESCR General Comment 18, 2005.

feasibility study was completed on the possibility of creating a pearl industry in the Maldives as a step to diversifying the economy. Other programmes target the relatively high levels of unemployment in the atolls, such as the recently proposed UNDP project to provide training in handicrafts and agriculture among atoll communities.¹⁹⁵

Measures to reduce the vulnerability of the tourism, fisheries, and agricultural sectors to climate change can also contribute to the protection and fulfilment of the right to work. For example, the Maldives Ministry of Fisheries, Agriculture, and Marine Resources introduced a hydroponics agricultural pilot project with the dual aim of increasing food security and creating additional employment opportunities. Hydroponic agriculture is less vulnerable to the salination and erosion caused by rising sea-levels. Similarly, the Ministry's Fisheries Technology Unit (FTU) undertakes research and information dissemination on appropriate technology required for the development of the fisheries industry, such as the redesign of traditional fishing vessels to respond to changing environmental conditions. Such programmes to develop new fishing technologies or agricultural practices that are more robust to climate change impacts can help support the right to work of traditional farmers and fisherman.¹⁹⁶

Indirectly, measures to help reduce non-climate change impacts on coastal and sea ecosystems can also reduce the vulnerability of the fishery and tourism sectors to climate change. The regulation of fishing practices, including limits on activities harmful to the environment such as sand or coral mining, and better enforcement of existing regulations can all contribute to the improved health of the coral reef. The Maldives has recently undertaken a project with the assistance of the World Bank to increase its capacity to manage environmental risks to coral reefs and marine habitats. The project includes in particular the objective to improve solid waste management so as to reduce the pressure on the ecosystem from poor waste disposal systems.¹⁹⁷ Another recently proposed project, "Integrating Tourism into Adaptation to Climate Change" would target the tourism industry. The objectives of the project include improving environmental awareness and good practices within the tourism industry, streamlining related national policies for environmental protection, and implementing pilot projects such as erosion control, water management, and coral conservation to reduce climate change vulnerabilities.¹⁹⁸

¹⁹⁵ Details on the projects supported by the UNDP are provided at the UNDP-Maldives country website. Available at <http://www.mv.undp.org>.

¹⁹⁶ Further information related to the hydroponics project, the FTU, and other agricultural and fishing programs is located on the Maldives Ministry of Fisheries, Agriculture, and Marine Resources website. Available at: <http://www.fishagri.gov.mv>.

¹⁹⁷ World Bank, "Maldives Environmental Management Project" Project Information Document Report No.: AB3619 (2008). Available at: <http://www.worldbank.org/>.

¹⁹⁸ *Small Island Destination prepares for Climate Change*, UN World Tourism Organization Press Release. Madrid, 5 June 2008. Available at: http://www.unwto.org/media/news/en/features_det.php?id=2351&idioma=E.

Additional measures that may be appropriate to ensure the right to work include technical and vocational trainings, the adoption of new employment and labour policies, and the introduction of policies to stimulate economic development. All of these measures are likely to be insufficient, however, in the case of a serious collapse of the major economic sectors.

Other Economic, Social and Cultural Rights

The Maldives has made steady progress in the attainment of many economic, social, and cultural rights, with incomes rising over threefold over a period of two decades, and a corresponding drop in levels of poverty.¹⁹⁹ The Maldives has made progress in the area of public health, increasing its health expenditure over the years and attaining reductions in maternal mortality, child mortality, human resource development, and immunization rates²⁰⁰. Similarly, public expenditure on education has risen to 8% of total GDP, and adult literacy rates have steadily climbed.²⁰¹ Many of these gains have been experienced by the people of the outer atolls, where development has tended to be uneven. Nonetheless, regional disparities in the enjoyment of economic, social, and cultural rights remain. Moreover, the steady improvements achieved in recent years – evidence of the Government’s commitment to the progressive implementation of economic, social, and cultural rights - are threatened indirectly by the impacts of global climate change.

The full enjoyment of economic, social, and cultural rights is recognizably limited by the capacity of the State to ensure these rights. The language of Article 2 is explicit in stating that the full realization of the rights will be attained “progressively” and by “steps” rather than immediately. Where the capacity of the State is depleted, the full enjoyment of economic, social, and cultural rights will suffer. Particularly for States with small economies, an expenditure on one social programme will imply a trade-off in expenditures on another priority. Climate change indirectly undermines the progressive realization of economic, social, and cultural rights, firstly, because it harms the sectors that are the primary source of revenue for the Maldives Government, and, secondly, because the diversion of resources to climate change adaptation measures reduces the funds available for other social programmes.

Revenue from tourism indirectly accounts for roughly one half of total Government revenue. Tourism and fisheries together accounted for over a third of GDP in 2007, at 27.5 and 8.4 percent of the total respectively.²⁰² The Tsunami in 2004 is estimated to have caused a loss of assets worth 62 percent of Maldives GDP. In the aftermath of the Tsunami, the Maldives

¹⁹⁹ WB, 2007

²⁰⁰ WHO, Country Cooperation Strategy 2007-2011 : Maldives, 2008

²⁰¹ WB, 2007

²⁰² MMNPD, 2007

experienced, for the first time in its recent history of high economic growth, a shrinking of the economy by 5.5 percent. In order to support the public investment programmes that were necessary for reconstruction, the Government had to take on much larger amounts of foreign debt. Without new revenue sources, this debt constrains the capacity of the Government to increase its public expenditure levels in the future.²⁰³ While the Tsunami was not a disaster caused by climate change, it sends a clear message that the Maldives is vulnerable to harm from extreme weather and sea events. The higher intensity storms and sea surges connected to climate change can devastate progress toward the attainment of economic, social, and economic rights.

Moreover, measures to protect climate change-threatened human rights divert resources from other programmes to advance economic, social, and cultural rights. The Maldives is a country with a small population, and it suffers not only from limited financial resources, but also a shortage of human resources. Adaptation measures to protect the population from climate change impacts are costly and often technically complicated. The preparation of climate change risk assessments alone demands great dedication on the part of experts from a diversity of fields. A number of climate change adaptation measures are “win-win”, in the sense that they also advance other broad goals of society. For example, measures to diversify the economy have benefits beyond those related to climate change. Other measures, however, represent a diversion of financial and human resources from other important objectives. Resources to build sea walls, to reconstruct infrastructure damaged by flooding, or to retrain doctors to treat newly emerging diseases all represent additional costs for the Government - resources that could have been used for existing public needs, such as education or health care programmes.

The indirect impacts of climate change on the capacity of States like the Maldives to continue the progressive realization of economic, social, and cultural rights indicates the important role that international cooperation must play in responding to climate change impacts. The role of the international community is addressed in section IV, below.

Procedural Rights Implicated by Climate Change

Procedural rights, including the rights to access to information, participation in decision-making, and access to justice, are recognized in a number of international human rights instruments. The principles underlying these rights also play an important role in international environmental law. Strong procedural rights and policies to improve public participation contribute to sound environmental decision-making, and can result in greater protection of both the environment and the individuals who depend on the environment for their survival. The linkage between procedural rights and environmental protection is articulated in Principle 10 of the 1992 Rio Declaration, which states: “Environmental issues are best handled with participation of all concerned citizens...” Principle 10 calls for appropriate access to information concerning the

²⁰³ WB, 2007.

environment, an opportunity to participate in decision-making processes, and for effective access to remedy. Procedural rights with respect to the environment are protected by a variety of international²⁰⁴, regional²⁰⁵, and national laws²⁰⁶. Article 6 of the UN Framework Convention on Climate Change (UNFCCC), for example, explicitly sets out the obligations of State Parties to promote and facilitate education, training, and public awareness of climate change and its effects, both nationally and regionally as appropriate. The obligation of State Parties to promote access to information and public participation is limited, however, according to the “respective capacities” of the Parties.²⁰⁷ As a Party to the UNFCCC, the Maldives has obligations to ensure procedural rights under both the UNFCCC as well as international human rights treaties.

Procedural rights are also relevant in the context of governments’ efforts to mitigate or adapt to climate change. Mitigation and adaptation measures can themselves impact human rights. Procedural rights play an important role in ensuring that other human rights are protected. This issue is discussed further below.

Right of Access to Information

Scope of Obligations

The right to freedom of expression and opinion, articulated in Article 19 of both the UDHR and the ICCPR, includes access to information as a critical component. The ICCPR states explicitly that “this right [to freedom of expression] shall include freedom to seek, receive and impart information and ideas of all kinds...” The right of access to information can only be restricted by law, and only where restriction is necessary to protect the rights of others, national security, or public order, health, or morals. The former Special Rapporteur on the Freedom of Opinion and Expression, Abid Hussain, has interpreted the right of the individual to seek, receive, and impart information to impose “a positive obligation on States to ensure access to information

²⁰⁴ A number of international environmental agreements espouse the rights of public access to information and participation. *See e.g.*, Article 14 of the Convention on Biodiversity (mandating environmental impact assessments and public participation as far as appropriate); Article 23 of the Cartagena Protocol on Biosafety (Parties must promote public awareness, and consult public in the decision-making process).

²⁰⁵ Most notably, the 1998 Aarhus Convention on Access to Information, Public Participation in Decision-making, and Access to Justice in Environmental Matters sets out binding standards for all three procedural rights. The treaty is regional to Europe, but it is open to other signatories.

²⁰⁶ Examples of national laws that protect procedural rights include environmental impact assessment requirements, freedom of information legislation covering information held by public authorities, and environmental legislation recognizing citizen’s suits.

²⁰⁷ The language of this provision is consistent with the principle of “common but differentiated responsibilities”, which allocates differing obligations on States according to their contribution to a global environment problem and capacity to respond to the issue. This principle, as it applies within the UN climate change conventions, is explained in greater depth in Section IV below.

particularly with regard to information held by the Government...”²⁰⁸ In this same light, the Inter-American Court of Human Rights has clarified the linkages between access to information and freedom of expression, observing that the State has a positive obligation to provide information of public interest that it holds.²⁰⁹

Under Article 6 of the UNFCCC, the Maldives has an obligation to promote public access to information on climate change, and specifically the development of educational and public awareness programmes. Although these obligations are owed to States rather than individuals, the effect of these provisions is to reinforce the right of access to information contained in the ICCPR.

Accordingly, the Maldives must ensure that available information related to climate change is accessible to the public. To the extent of its capacity to do so, such information should be made available in the form of educational and public awareness programmes. Relevant information could include the projected impacts of climate change within the Maldives, the measures available to respond to climate change impacts, and the effects of different mitigation and adaptation measures. Access to such information is an important precursor to public participation in decision-making processes related to climate change.

Measures to Protect and Ensure the Right of Access to Information

One of the major barriers to access to information related to climate change is that information is not available in a form that is understandable to the public. While the UNFCCC and the IPCC have produced several documents that are easily accessible online and comprehensible to policy-makers, these documents are not always appropriate for use by the general public. Individuals need information on climate change causes and effects in non-technical terms, written in their native language, and addressing their region or locality specifically. The information on international-level climate change risks must be presented in a form that addresses the needs and concerns of local people, and then disseminated via methods that are publicly accessible. Access to this information is crucial if the public is to have a meaningful role in evaluating, commenting on, and participating in the selection of climate change mitigation and adaptation measures.

The Maldives has begun to take steps to improve access to information and enable public participation with respect to environmental issues. In 2006, a Rapid Assessment of Perceptions into Environmental Management was conducted in the Maldives. A key finding of the assessment was that communities believed their lack of technical knowledge precluded their ability to manage environmental issues. In response to the findings, the Government elaborated a strategy to implement a new way of delivering environmental education so as to better

²⁰⁸ Abid Hussain, Report of the Special Rapporteur on the Protection and Promotion of the Right to Freedom of Opinion and Expression, 1999.

²⁰⁹ Inter-Am. Ct. HRs, *Claude Reyes et. al. v Chile*, Judgment (Sept. 19, 2006), para. 77.

empower community involvement in decision-making. Objectives of the strategy during the period 2007-2010 include integration of environmental education across the national curriculum, increasing the profile of sustainable development in the media, and improving environmental training among teachers. Additionally, the Maldives Government periodically compiles information on the environment into a State of the Environment report; the Government most recently initiated the process to generate the third such report in 2007. A number of reports have been published that compile information on climate change risks specifically in the Maldives, including the Maldives First Communication to the UNFCCC, the Vulnerability and Adaptation technical paper, the Climate Change Risk Profile, and ultimately the National Adaptation Programme of Action (NAPA), completed in 2006.

Right of Participation in Decision-Making

Scope of Obligations

The right of public participation in decision-making is enshrined in Article 21 of the UDHR and in Article 25 of the ICCPR. Under the latter, the right of the individual to “take part in the conduct of public affairs” cannot be subject to “unreasonable restrictions.” The HRC, in considering claims of a violation of a minority group’s rights, has stated that the acceptability of certain measures that interfere with rights can depend on whether or not there has been an opportunity for participation in the decision-making process.²¹⁰ Meaningful public participation can only be attained where individuals have access to information that facilitates their participation.²¹¹

The importance of public participation has also been addressed in numerous international environmental instruments, often in connection to the principle of sustainable development.²¹² As stated by Fatma Zohra Ksentini, the Special Rapporteur on Human Rights and the Environment: “Failure to take part in decision-making, whether internationally or nationally, has been and still is at the origin of development choices or the imposition of development strategies

²¹⁰Apirana Mahuika et al v New Zealand, Communication No. 547/1992, UN Doc. CCPR/C/70/D/547/.

²¹¹ This linkage has been made explicitly by many regional human rights bodies. See e.g., Inter-American Commission on Human Rights, Report on the Situation of Human Rights in Ecuador, OEA/Ser.L/V/II.96, doc. 10 rev. 1 7 (1997) (“ ‘Meaningful’ [participation] in this sense necessarily implies that indigenous representatives have full access to the information which will facilitate their participation”).

²¹² Including but not limited to: the World Charter for Nature, UN GA Res 37/7 (1982), Principle 23.; the United Nations Convention to Combat Desertification in Those Countries Experiences Serious Drought and/or Desertification (14 October 1994), (Art. 3); The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (September 10, 1998), Article 15(2); The Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Montreal, January 29, 2000), 39 I.L.M.1027, Art. 23; The UN Conference on Environment and Development, Agenda 21 A/CONF.151/4(Part III), chap. 23, paras. 23.1 and 23.2.

which have had serious adverse effects on the environment.”²¹³ The preamble to Section III of Rio’s Agenda 21, on strengthening the role of major groups, refers to public participation as “one of the fundamental prerequisites for the achievement of sustainable development.” In line with this principle, Article 6 of the UNFCCC places an obligation on the State to “promote and facilitate.., public participation in addressing climate change and its effects and developing adequate responses.”

Measures to Protect and Ensure the Right to Participate

Climate change, with the global sweep of its impacts and the fundamental changes it causes to the environment can dramatically alter the plans for development within a nation. Faced with the immersion of coastlines and eventually whole islands, new scarcity of resources and potentially enormous demands on governmental resources, difficult decisions must be made on how to share the burdens of climate change. It is crucial to include the people affected in the decision-making process to determine how to respond to these threats. The participation of the public can legitimise the decisions taken in response to climate change, and help to ensure that mitigation and adaptation measures do not inappropriately impinge on the rights of others, or cause unnecessary harm to the environment. Decisions following a process of public deliberation are more likely to be sound and sustainable.

In the process of developing its National Adaptation Programme for Action (NAPA), the Maldives was guided by principles of broad stakeholder engagement. Three broad stakeholder consultations were organized: one at national-level and two at regional-level. Representatives from seven atolls and Male’ participated in community consultations, awareness raising events, and workshops on the identification and prioritisation of adaptation measures. The NAPA process was accompanied by public awareness campaigns, including the preparation of materials in both local Dhivehi and English languages and the airing of dedicated radio and TV programmes. Public schools were also targeted for public awareness sessions, while NGOs helped to organize a special public lecture addressing the most recent scientific knowledge of climate change impacts. Prior to the conclusion of the NAPA, a series of climate change research papers were produced and made available on the Ministry of the Environment, Energy, and Water’s website for public comment. The final NAPA was further linked to the broader goals of the 7th National Development Plan—a document that was also produced after a process of stakeholder engagement and public participation.

Right to Remedy

²¹³ Ksentini, 1994.

Article 8 of the UDHR states “Everyone has the right to an effective remedy by the competent national tribunals for acts violating the fundamental rights granted him by the constitution or by law.” This right has further been elaborated in Article 14 of the ICCPR. While much attention is placed on the aspects of Article 14 addressing criminal procedures, the HRC has emphasized that such requirements also apply to the determination of rights and obligations in a suit at law²¹⁴. Furthermore, Article 2(3) the ICCPR sets out the obligation of State Parties to ensure an effective remedy for any person whose rights under the ICCPR are violated and to ensure the remedy granted is enforced. This same protection is not, however, included within the ICESCR. The ESCR Committee has noted that judicial remedies can be an appropriate measure to ensure economic, social, and cultural rights where they are justiciable.

International environmental instruments also address the importance of a remedy for the victims of environmental damage. The Rio Declaration calls on States to provide for effective access to judicial and administrative proceedings in Principle 10, and Principle 13 more specifically calls for the development of national and international laws regarding liability and compensation for environmental damage. Similar provisions are included within other international environmental instruments.²¹⁵ Such remedies help to operationalise the “polluter-pays” principle well recognized within the body of international environmental law.

Measures to Protect and Ensure the Right to Remedy

The right to a remedy is perhaps most directly applicable to the actions taken by governments in response to climate change, such as mitigation or adaptation measures. Where these measures violate rights under ICCPR or justiciable rights under the ICESCR, a State should ensure a remedy is available for the affected individuals. At the national-level, a right to remedy specifically for climate change violations is likely not necessary, so long as the right to remedy is adequately protected more generally in national and local laws.

Safeguarding Rights when Responding to Climate Change

The discussion above describes how climate change can threaten fundamental human rights, and result in the need to adopt measures to protect and ensure these rights. These measures can aim at tackling climate change at the source (through mitigation measures, including the cutting of greenhouse gas emissions) or they can aim at alleviating or preventing the negative impacts of climate change (adaptation measures).

²¹⁴ HRC General Comment 14, 1984

²¹⁵ Agenda 21 also includes language calling on governments to establish means for legal redress and remedy for environmental harms, and to provide access to these remedies broadly to both individuals and groups with legal interest in the environmental impact. The UN Convention on the Law of the Sea, a binding international treaty, includes in Article 235 a provision obligating Parties to provide relief for damage from pollution caused by legal persons under their jurisdiction.

Both types of measures can themselves impact the enjoyment of human rights, as can emergency response and relief measures provided during climate change-related disasters. To ensure the full attainment of human rights, therefore, both State governments and the international community should take steps to safeguard human rights during the selection and implementation of all climate change-related measures. This discussion focuses on the importance of safeguarding human rights at the national- and local-levels, while section IV, below, will address the role of the international community more fully.

Safeguarding Rights during the Implementation of Mitigation and Adaptation Measures

Mitigation measures are those policies and actions seeking to reduce the anthropogenic causes of dangerous climate change including, most prominently, measures to reduce greenhouse gas (GHG) emissions. As most of the world economy is based upon processes that release GHG emissions, moving away from these processes has numerous secondary effects. There is a risk that some of these secondary effects could pose a serious threat to the enjoyment of fundamental human rights. Most recently, the effects of bio-fuels policies adopted in the European Union and the United States have raised questions about the impacts of these policies on food security, particularly in vulnerable food-importing countries. By diverting agricultural lands and food crops toward the production of bio-fuels, these mitigation policies may indirectly result in rising food prices, food shortage affecting especially the poor, and a threat to the basic right to food in affected populations.²¹⁶ Other mitigation policies, such as large-scale forest conservation efforts or the shift to alternative energy sources such as nuclear power, also can have secondary effects that pose risks to human rights.²¹⁷

Adaptation measures are those policies and actions that seek to adjust to new environmental conditions and reduce the harmful impacts caused by climate change. While many adaptation measures can have an effect of ensuring human rights, such measures can also have the opposite effect, undermining the rights of individuals as a consequence. For example, policies to move populations from areas threatened by climate change-related flooding may have the intention of protecting the life, security, and health of individuals; however, if these policies are implemented in ways that unfairly discriminate, forcibly, or without furnishing procedural protections such as access to information and community participation, the result can be that human rights are undermined. Similarly, poorly planned migration of a threatened population to a new area that lacks adequate social and economic infrastructure or facilities can undermine the human rights of both the displaced population and the host community.

²¹⁶ International Council on Human Rights Policy, *Climate Change and Human Rights: A Rough Guide*, 2008.

²¹⁷ For a more in depth discussion of the potential impacts of mitigation policies on human rights, *see* ICHRP, 2008 at 27-40.

With adequate planning and careful consideration of human rights, mitigation and adaptation policies need not have negative impacts on human rights.²¹⁸ As a starting point, implemented measures must be consistent with the principle of non-discrimination, which is a central tenant of all major human rights treaties. The respect for the procedural rights of those affected by climate change measures, including the right to access of information, the right to participation, and the right to remedy, is also critical to ensure that climate change measures fulfil rather than undermine human rights.

The Maldives Safer Island Strategy, the policy to consolidate populations onto larger islands that provide better access to infrastructure, services, and climate change protection measures, is a key example of an adaptation measure with the potential to have secondary effects on human rights. The migration of entire communities can have implications vis-à-vis access to housing, water, and sanitation, and other infrastructure and services, particularly in areas like the Maldives where land and resources are scarce. Poorly planned migration represents a threat to the rights of both the migrant and the host communities, including the rights to work, to housing, to water, and health. Where resources are scarce on the host island or there is inadequate integration of the migrant population into the host community, there is a risk that a host population will be resentful of the threat to its own resources or way of life, and respond with violence to the migrant population. In these cases, migration can result in a threat to the right to life, health, and security of the migrant populations. The division of communities or families as the result of migration can also lead to emotional distress and threaten the common culture of the community.

The Maldives has taken steps to limit the potential secondary impacts of the Safer Islands Strategy on human rights. According to the policy, relocation must be voluntary, and the Government will only facilitate the migration when the whole community formally decides to relocate. Furthermore, there must be an explicit agreement between the relocating community and the potential host community as a prerequisite to relocation. The Government provides each relocating family with a new house and relocation compensation, and undertakes to upgrade the services and facilities on the host island to meet the growth in population. In this way, the Safer Islands Strategy works to protect and ensure the fulfilment of the migrant community from climate change impacts, while reducing the secondary impacts of the measure on both the host and migrant communities.²¹⁹

Safeguarding Rights during a Natural Disaster

Until very recently, little attention was paid to the human rights of people displaced during disasters. More recently, the concept of “internally displaced persons” (IDPs) has been coined to

²¹⁸ See IUCN, *A Rights-Based Approach to Climate Change Mitigation: the Clean Development Mechanism of the Kyoto Protocol*, (forthcoming 2008).

²¹⁹ MMNPD, 2007a.

afford protection to "persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalised violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognised State border."²²⁰ The definition provided by the Guiding Principles highlights two elements: 1) the coercive or otherwise involuntary character of movement, and 2) the fact that such movement takes place within national borders.

Since IDPs do not cross international borders and since political persecution is not necessarily the reason for their displacement, they do not fall under the protections afforded by a refugee status. Additionally, international humanitarian organizations are not explicitly bound by international human rights treaties.²²¹ Thus, the role of international human rights protections during disaster response was not initially broadly recognized. The international community has become increasingly aware of the way internal displacement may contribute to human rights violations, and consequently acknowledged the importance of taking actions to safeguard rights during disaster-preparedness and disaster response efforts.

Displacement separates families, undermines social and cultural ties, hinders access to traditional livelihoods, disrupts educational opportunities, and affects access to vital necessities such as food, shelter, and medicine.²²² In addition, disaster relief efforts have at times been undertaken in a manner that does not afford sufficient protection of human rights. IDPs frequently encounter problems including discrimination in access to aid, forced relocation, sexual- and gender-based violence, loss of documentation, unsafe or involuntary return to the area of displacement, and difficulties in property restitution.²²³ In this regard, women and children are particularly vulnerable to suffering if they become IDPs.

Climate change exacerbates the likelihood and intensity of disasters such as tropical cyclones, flooding, droughts, and famine that lead to internal displacement and migration. It remains uncertain how many people will be displaced globally as a result of climate change, but the estimates range between 25 million and 1 *billion* people by 2050.²²⁴ Even the most conservative estimate highlights the importance of strengthening the normative and institutional frameworks in place for the protection of IDPs. Clarification of the scope of obligations of both national and international actors is a critical step to ensure the full enjoyment of human rights among displaced and migrant populations.

²²⁰ Guiding Principles on Internal Displacement.

²²¹ Inter Agency Standing Committee (IASC), Operational Guidelines on Human Rights and Natural Disasters, 2006.

²²² Francis Deng, Report of the Representative of the Secretary-General, 1998,

²²³ IASC, 2006.

²²⁴ Oil Brown, Migration and Climate Change, 2008.

Several documents provide guidance on the duties of national and international humanitarian actors to protect and fulfil human rights in their actions prior to and following a disaster. The Guiding Principles on Internal Displacement identify the rights and guarantees that are relevant to the protections of displaced persons. As the first principle, the Principles declare that IDPs shall enjoy the same rights and freedoms under the law as other persons in the country. National authorities have the primary responsibility to provide protection to IDPs (Principle 3), yet international humanitarian organizations and other actors should give due regard to the human rights of IDPs, including taking appropriate measures (Principle 27). The Guiding Principles address both the protection from displacement and protection during displacement. Notably, Principle 5 calls on all authorities and international actors to respect and ensure respect for their obligations under international law, so as to prevent and avoid conditions that might lead to the displacement of persons.

In his work to further the implementation of the Guiding Principles, the current Representative of the Secretary-General on the Human Rights of Internally Displaced Persons has identified 12 key steps for national governments to fulfil their responsibility, including taking effective measures to prevent displacement and minimize its adverse effects.²²⁵ The Inter-Agency Standing Committee, the main forum for major humanitarian agencies to ensure inter-agency decision-making in response to complex emergencies, has further released Operational Guidelines on Human Rights and Natural Disasters. The Operational Guidelines identify actions national authorities and international humanitarian organizations should take in order to implement a rights-based approach to humanitarian action in the context of natural disasters.²²⁶ Such guidance is highly relevant to national and international actions in preparation and response to climate change related disasters.

IV. THE ROLE OF THE INTERNATIONAL COMMUNITY

As described above, the Maldives has already taken a number of concrete measures to protect and fulfil the rights of individuals that are threatened by climate change – a phenomenon for which the Maldives bears essentially no responsibility. The need and the costs for adaptation projects – a consequence of an environmental problem caused by emitters of GHGs outside of the Maldives' borders -- will only increase if emissions are not reduced or stabilized, and in some cases, no remedies will be available at all. In order to ensure that the rights and freedoms of the Maldives's people are protected and fulfilled in accordance with the UN Charter and the

²²⁵ Walter Kälin, *Specific Groups and Individuals: Mass Exodus and Displaced Persons*, 2006

²²⁶ IASC, 2006.

UDHR²²⁷ as well as other human rights instruments, the international community has the duty to both ensure that GHGs are reduced or stabilized as well as to provide funding for adaptation.

In the Maldives, the implementation of adaptation measures has indeed been made possible with the support from the international community. Without technical assistance and financial support from bilateral, regional, and multilateral donors, the Maldives would not have had the capacity to put in place most of the more costly and technically complex adaptation measures. Yet the existing adaptation measures are insufficient to fully protect and ensure human rights from the threat of climate change. Much of the international support for adaptation measures has come in response to the catastrophic damages of the 2004 Tsunami, rather than in the form of climate change specific adaptation funds, and simply do not go far enough to respond to the still emerging impacts of climate change. Further measures are necessary to protect and fulfil climate change-threatened human rights as sea-levels rise and warming continues as projected by the scientific consensus.

Ultimately, however, only international cooperation to stabilize GHG emissions at scientifically agreed-upon safe levels can prevent the most catastrophic climate change impacts. *The Maldives on its own is incapable of preventing the violations of fundamental human rights that are already taking place as a result of climate change – violations which will occur on a scale of increasing magnitude should the most likely climate change scenarios be realised.*

The disproportionate impacts of climate change on developing and least developed countries, which have contributed least to the problem and are also the least capable of bearing the harms of climate change, point to the critical role of the international community in responding to climate change threats. Industrialized countries, as the primary cause of already existing anthropogenic climate change, bear a special responsibility to respond to the harms caused. International human rights and international climate change conventions recognize the legal and moral obligations of the international community to respond to climate change.

This section addresses the gap between the Maldives' climate change adaptation needs and its capacity to implement climate change measures. It then examines the legal and moral obligations of the international community to respond to the impacts of climate change on human rights under both international human rights and the international climate change regime.

²²⁷ Article 56 of the UN Charter provides: "All members pledge themselves to take joint and separate action in cooperation with the Organization for the achievement of the purposes set forth in Article 55". The relevant part Article 56 provides: "With a view to the creation of conditions of stability and well-being which are necessary for peaceful and friendly relations among nations based for respect for the principle of equal rights and self-determination of peoples, the United Nations shall promote: ... (c) universal respect for, and observance of, human rights and fundamental freedoms for all without distinction as to race, sex, language, or religion". Article 28 UDHR provides: "Everyone is entitled to a social and international order in which the rights and freedoms set forth in this Declaration can be fully realized".

The Need for Further Measures to Protect and Fulfil Climate Change-Threatened Human Rights

Despite the strong and pro-active response of the Maldives to the threat of climate change, large areas of vulnerability remain and constitute a significant threat to individual and collective human rights. Many island communities remain vulnerable to the effects of sea-level rise, sea surges, and flooding. Food and water security will remain under serious threat without further action. Coastal and marine environments that serve as the basis of the economy are inadequately protected from climate change impacts. The NAPA, included as an attachment to this submission, identifies 20 prioritized projects needed for the long-term adaptation of the Maldives to the adverse effects of climate change. While these proposed measures are inadequate to protect against the harms of catastrophic levels of climate change, the measures are necessary to protect and ensure human rights from climate change impacts that have already occurred and are expected to continue for decades.²²⁸

International support has been crucial to the planning and implementation of existing adaptation measures. From the provision of experts and funding to complete the initial climate change risk assessments; to the technical and financial support for adaptation measures; the Maldives has relied on international organisations, governments, and private donors to put in place its climate change strategy. The chart below provides an example of the variety of adaptation measures that have received the support of the international community.

Sample List of Adaptation Measures Supported by the International Community

Project Title	Implementing Agency	Cost	Length	Description
Environmental Management Project	World Bank	\$13.9 million	2008-2014	The objective of the Environmental Management Project is to provide the Republic of Maldives with the capacity to effectively manage environmental risks and threats to fragile coral reefs as well as marine habitats resulting from tourism development, increased solid waste disposal, fisheries and global climate change.
Sea Wall	JICA	Nearly 70 USD million	1995-2002	Japan carried out a Development Study on the "disaster prevention plan of the coast of Male' island" between 1991 and 1992. A permanent concrete seawall, including wave control structures was

²²⁸ Climate change effects will likely continue for decades even after the reduction and stabilization of GHG emissions is achieved, because of the climate system's long process of adjustment. (IPCC 2007)

				constructed as part of the project, which is expected to protect the shore from high seas and waves and thus to prevent disaster.
Desalination plants	IFRC, Red Cross Australia	\$3.2 million	2005-07	A supplementary water system project on 15 islands which desalinates seawater into drinkable, safe water, to ensure secure access to safe water for the island communities. Although optimizing rainwater harvesting is the preferred way to meet the water needs of each island, the supplementary water supply provides additional security for times of low rainfall.
Water and Sanitation	UNICEF	About \$20 million	2004/05-07	Over 50,000 people are benefiting from improved water systems, including the delivery of some 7,000 water storage tanks for rainwater harvesting and 23 reverse-osmosis desalination plants.
Restoring Livelihoods	UNDP	\$9.2 million	2005-07	To restore livelihoods and food security from Tsunami impacts, and revitalize the most affected families and small enterprises in the fisheries and agriculture sectors across 16 atolls.
Disaster Risk Management	UNDP	\$25.2 million	2005-07	To work with government partners, NGOs, and island communities to establish mechanisms to manage and mitigate natural disasters
Shelter Response and Recovery	UNDP	\$25.2 million	2005-07	To address the urgent needs for shelter, while laying the foundation for a longer-term sustainable recovery of the housing sector across 45 islands in 12 atolls.
Alternative economic activity: Pearl Culture	UNDP	\$ 386,000	2004-08	This project is designed to further improve the technical and human resource capacity of the country to develop a penguin shell and half round pearl culture industry in the Maldives. This is an extension of the pilot phase carried out in 1996 in which technical feasibility of the pearl culture was demonstrated. The project aims to build a sustainable pearl culture industry in the Maldives will contribute towards much needed economic diversification in the

				country.
Tourism adaptation	UNDP	\$50,000	2008-2010 or 2011	This project will identify and implement practical, on-the-ground adaptation measures that will accelerate the process of reducing the vulnerability of the tourism sector in the Maldives to climate change.

The costs of adaptation measures are prohibitive for a small developing economy. The cost of the seawall put in place to protect Male' from ocean hazards, for instance, totalled close to US\$ 70 million, amounting to more than 10% of the Maldives' GDP at the time of its completion. Additionally, developing nations frequently lack the technical and human resources to implement adaptation measures. For example, the Maldives' NAPA recognizes that the country lacks the capacity to undertake risk assessments or develop technical and engineering solutions to implement coastal protection measures of focus islands and major infrastructure. Thus, the strategies for achieving the 20 NAPA adaptation projects include significant training and capacity-building components. The initial capacity-building strategies identified within the NAPA alone are projected to cost a total of about US\$ 36.6 million.

Many of the existing adaptation measures were funded by the outpouring of international support following the 2004 Tsunami. While such humanitarian efforts have been invaluable to the Maldives, dedicated sources of support for climate change adaptation are urgently needed. International aid that is connected to a particular disaster cannot meet the need for long-term strategies, planning, and support that a multi-generational threat like climate change demands.

Currently, there are three adaptation funds created under the climate change conventions--the Special Climate Change Fund, the Least Developed Countries Fund, and the Kyoto Protocol Adaptation Fund. The amount of funding provided through these mechanisms, however, is grossly inadequate to meet adaptation needs. Contributions to existing funds are between US\$ 150 to 300 million per year, while best estimates of adaptation costs range in the tens of billions of dollars annually.²²⁹

In the continued absence of international action to reduce and stabilize GHG emissions or support adaptation, the Maldives and other developing countries vulnerable to climate change will face an increasing likelihood that their inhabitants will suffer the denial of the most basic human rights as a result of climate change impacts.

²²⁹ World Bank, *Agriculture for Development: World Development Report 2008*, 2007a. Additional critiques have been lodged against the existing adaptation measures aside from the lack of funding. *See* ICHRP, 2008 at 21-3.

Obligations of the International Community under International Human Rights Instruments

Previous sections identify certain rights that are particularly vulnerable to climate change impacts and to climate change mitigation and adaptation actions. These rights are protected by numerous international human rights treaties, and they give rise to relevant obligations with respect to the rights threatened by climate change. This section focuses on the International Bill of Rights, comprising the UN Declaration of Human Rights and the two universal human rights covenants. Since the covenants elaborate and specify the normative content of the UDHR, they are examined in turn.

The Right of Self Determination and other Rights under the ICCPR

The United Nations Charter, the ICCPR and the ICECR each recognize the inalienable right of all peoples to self-determination as an essential condition for the effective guarantee and strengthening of individual rights. By contrast to the ICECR, under Article 2 of the ICCPR, the obligations imposed to respect and ensure rights under the ICCPR extend expressly only to individuals within the territory of a State and to those subject to its jurisdiction.²³⁰ However, the right to self-determination, a foundation of other rights, cannot be realized by a State independently. General Comment 12 to the ICCPR on self-determination confirms that States should refrain from interfering in the internal affairs of other States in a way that adversely affects the exercise of the right to self-determination. While the HRC did not perhaps explicitly contemplate interference in the manner imposed by climate change, catastrophic climate change would similarly cause the denial of the right to self-determination of the Maldives people. Accordingly, States individually and collectively must refrain from emitting GHGs at levels that adversely affect the rights of small island peoples to self-determination. This would suggest that an international climate change agreement that fails to attain GHG reductions and stabilization at anything less than scientifically-agreed safe levels would be incompatible with international human rights law and obligations under the UN Charter.

Furthermore, Article 2 of the ICCPR has been interpreted to impose an obligation on the international community to take positive action toward the realisation of the right of self-determination, regardless of whether a people are located within the territory or jurisdiction of a particular State. The HRC states that “Paragraph 3 [of article 1],²³¹ in the Committee's opinion, is particularly important in that it imposes specific obligations on States parties, not only in relation

²³⁰ ICCPR Article 2.1 “Each State Party to the present Covenant undertakes to respect and to ensure to all individuals within its territory and subject to its jurisdiction the rights recognized in the present Covenant...”

²³¹ Article 1 (3) stipulates: The States Parties to the present Covenant, including those having responsibility for the administration of Non-Self-Governing and Trust Territories, shall promote the realization of the right of self-determination, and shall respect that right, in conformity with the provisions of the Charter of the United Nations.

to their own peoples but vis-à-vis all peoples which have not been able to exercise or have been deprived of the possibility of exercising their right to self-determination.”²³² Such positive obligations may point to the need for special agreements regarding the migration of island peoples to other territories in the event that climate change impacts render Small Island Developing States uninhabitable. The conclusion of such special agreements would not, however, allow States to derogate from their primary obligations to reach an agreement that effectively protects the right of island peoples to self-determination by mitigating climate change.

The positive and negative duties under the ICCPR extend equally to the economic aspect of the right to self-determination, the right of a people not to be deprived of its own means of subsistence. The HRC has indicated that States should report to the Committee on “...any factors or difficulties which prevent the free disposal of their natural wealth and resources contrary to the provisions of this paragraph and to what extent that affects the enjoyment of other rights...”²³³ Climate change impacts impinge on the disposal of natural wealth resources of the Maldives people, harming or depleting water resources, agricultural lands, and the natural ecosystems that are the foundation of local livelihoods. Accordingly, States have a duty to reduce their levels of GHG emissions to a level that does not pose a threat to the means subsistence of the Maldives people, including the Maldives water supply, fisheries, and agricultural capacity.

The international community must take into account these international human rights obligations in the course of negotiations addressing climate change. The outcome of the UNFCCC negotiation process should ensure that the right of small island peoples to self-determination will not be violated by climate change impacts.

While states have an extraterritorial obligation to comply with the right of self-determination, their obligations with respect to other rights appear not to extend beyond territory or individuals over which they have “effective control.” If global warming displaces affected individuals from their own land, causing them to lose control over their own lives, it could well subject them to the control of others, including the state or states contributing to the warming. As a consequence, residents of the Maldives or other islands and low-lying areas that become uninhabitable as a result of sea-level rise, would arguably be at the mercy of the larger, more powerful countries that have caused or are causing the harm. In this situation, obligations of those countries under the ICCPR would extend to the Maldives’ residents. .

The Duty to Cooperate to Achieve the Full Realization of Rights under the ICESCR

²³² HRC General Comment 12, 1984.

²³³ HRC General Comment 12, 1984.

The ICESCR includes an explicit provision addressing the role of the international community in promoting the fulfilment of economic, social, and cultural rights. Article 2 of the ICESCR requires each State Party “to take steps, individually and through international assistance and co-operation, especially economic and technical, to the maximum of its available resources, with a view to achieving progressively the full realization of the rights recognized in the present Covenant by all appropriate means . . .” Article 23 of the ICESCR elaborates on this requirement, stating that international action includes “the conclusion of conventions, the adoption of recommendations, the furnishing of technical assistance” and other methods.

The ESCR Committee has repeatedly drawn attention to the essential role of international cooperation in achieving the full realization of particular rights under the ICESCR, stating State parties should “comply with their commitment to take joint and separate action” to achieve this goal.²³⁴ With respect to the right to health, the Committee has more fully described the contours of the obligation for international cooperation. States must firstly respect the enjoyment of the right to health in other countries and, where possible, protect this right from violation by actions of third parties. In addition to the duty to respect and protect, the international community has an obligation to facilitate access to essential health facilities, goods, and services, and “wherever possible” to provide such aid when it is needed. Finally, the Committee has stated, “State parties should ensure that the right to health is given due attention in international agreements, and to that end, should consider the development of further legal instruments.”²³⁵ The Committee has defined a similar role for the international community with respect to the right to food, the right to water, and the right to work.²³⁶ Moreover, in its discussion of the right to water the Committee has been clear that State parties must also refrain from actions that *indirectly* interfere with the enjoyment of rights in other countries.²³⁷ The ESCR Committee has indicated particular areas that implicate the joint and individual responsibility of State parties and necessitate international cooperation. Notably, it has stated that it is the responsibility of all State parties to cooperate in providing disaster relief and humanitarian assistance in times of emergency. Further, “[e]ach State should contribute to this task to the maximum of its capacities.” Priority in the provision of aid and funding should be given to the most vulnerable or marginalized groups of the population.²³⁸ The Committee has also indicated the international community has a “collective responsibility” to address threats to human rights that are trans-boundary in nature, such as

²³⁴ CESCR General Comment 14, 2000.

²³⁵ CESCR General Comment 14, 2000.

²³⁶ CESCR General Comment 12, 1999.; CESCR General Comment 15, 2004; CESCR General Comment 18, 2005.

²³⁷ “International cooperation requires States parties to refrain from actions that interfere, directly or indirectly, with the enjoyment of the right to water in other countries. Any activities undertaken within the State party’s jurisdiction should not deprive another country of the ability to realize the right to water for persons in its jurisdiction.” (CESCR General Comment 15, 2002) at para 31.

²³⁸ CESCR General Comment 14, 2000.

certain diseases. In addressing these trans-boundary issues, “[t]he economically developed States parties have a special responsibility and interest to assist the poorer developing States...”²³⁹

The obligations of all State Parties to respect and protect rights, and to facilitate or provide access to resources necessary to ensure rights apply equally to the threats posed by climate change to rights under the ICESCR. Climate change, because of its trans-boundary nature and the acute threat it poses to economic, social, and cultural rights among vulnerable populations, is an issue that implicates the responsibility of all State parties to cooperate. In light of the ICESCR’s text and the guidance of the Committee, it is clear that Parties have several types of international duties with respect to climate change.

First, States are required to limit emissions within their jurisdiction to levels such that climate change impacts do not interfere with the enjoyment of the rights of vulnerable populations. This would indicate that only a climate change agreement that reduces GHG emissions to scientifically-agreed safe levels would be compatible with the obligations of State parties under the ICESCR. The outcome of the UNFCCC negotiations must ensure that climate change impacts do not interfere substantially with the capacity of the most affected States to protect and fulfil internationally recognized human rights.

This duty arises from several sources. Most important, each State Party has the duty under Article 2(1) “to take steps . . . through international assistance and cooperation . . . with a view to achieving progressively the full realization of the rights” in the ICESCR. As the preceding sections explain, the Maldives *cannot* fully realise those rights unless concentrations of GHGs in the atmosphere are stabilized at safe levels, and such stabilization is impossible in the absence of effective international cooperation. In addition, the duty to negotiate effective climate change agreements arises from the obligation of each Party not to interfere with the fulfilment of rights by other Parties.²⁴⁰ Again, as described above, the continued emission of greenhouse gases from other countries does interfere, drastically, with the Maldives’ ability to fulfil the human rights of

²³⁹ CESCR General Comment 14, 2000.

²⁴⁰ This principle draws support from basic obligations of good faith in the performance of international obligations, but it has also been the subject of specific guidance by the ICESCR Committee. The Committee has repeatedly stated, in the context of its general comments on food, health, and water that State parties must refrain from interfering with the enjoyment of human rights in other countries. See General Comment 12, ¶ 37 (“States parties should refrain at all times from food embargoes or similar measures which endanger conditions for food production and access to food in other countries.”); General Comment 14, ¶ 41 (“States parties should refrain at all times from imposing embargoes or similar measures restricting the supply of another State with adequate medicines and medical equipment.”) General Comment 15, ¶ 31 (“States parties have to respect the enjoyment of the right [to water] in other countries. International cooperation requires states parties to refrain from actions that interfere, directly or indirectly, with the enjoyment of the right to water in other countries. Any activities undertaken within the State party’s jurisdiction should not deprive another country of the ability to realize the right to water for persons in its jurisdiction.”).

its people. Finally, it arises from the obligation of Parties to take steps to ensure that private actors within their jurisdiction do not violate the rights protected by the Covenant.²⁴¹

Second, for the same reasons, State Parties have the obligation to ensure that they effectively implement their obligations under existing climate change agreements.

Third, State Parties should facilitate or, wherever possible, provide access to aid for adaptation measures that are essential to the fulfilment of fundamental economic, social, and cultural rights. Well-resourced and effective adaptation funding mechanisms are integral to achieving the full attainment of climate change-threatened rights, and the international community should cooperate to implement such a mechanism. Consistent with the Committee's general comments, the funding of adaptation measures should give priority to the populations most vulnerable to climate change impacts. Additionally, as climate change impacts exacerbate the likelihood and intensity of disasters such as tropical cyclones, flooding, droughts, and famine, the role of international cooperation in disaster relief and humanitarian assistance will be increasingly important to safeguard human rights. Economically developed States have a special responsibility to increase their level of support accordingly.

In short, State Parties must give due attention to threatened economic, social, and cultural rights in the course of negotiation of the international climate change conventions. This attention is not just a moral obligation. It is a legal duty arising from the ICESCR and other human rights treaties.

Obligations of the International Community under Customary International Human Rights Law

The emergence of customary norms relating to the Bill of Rights has direct implications for the obligations of the international community to avert climate change and address its impacts. The fact that human rights norms are recognized in customary international law not only has legal implications but also translates into a shared moral ground for the international community, which finds in this body of law inspiration and guidance for cooperating toward an international order where these rights may be fully realised.²⁴² In this sense, all States are required to ensure that activities under their jurisdiction or control do not result in violations of the rights recognized in customary human rights law. In other words, customary law emphasises the protection of human dignity, without limitations based on nationality.

²⁴¹ This duty to protect has been explained by the Committee in its General Comments 12, on food, and 14, on health. It has also been elaborated in recent reports to the Human Rights Council from Professor John Ruggie, the Special Representative of the Secretary General on the issue of human rights and transnational corporations. His 2008 report is UN Doc. A/HRC/8/5.

²⁴² Universal Declaration on Human Rights (UDHR), Article 28.

Certain key human rights principles, such as self-determination, non-discrimination, and the right to life, are implicated in the obligations of the international community under customary international human rights law. In respect of self-determination, for example, effective control over territory is impaired or completely destroyed by loss of territory caused by climate change. This situation places suffering communities under the control of other States, which thus bear the obligation to address the violation of the rights, including by ceasing to emit GHGs beyond scientifically acceptable levels defined by international cooperation in multilateral spheres.

It is no excuse to this obligation that the beneficiaries of the rights are located outside the territory of the State causing the problem. As the principle of non-discrimination has entered the realm of *ius cogens*, any distinction based upon nationality that impairs the enjoyment of human rights is unlawful. Thus, any jurisdictional requirements that have passed into customary international law need to be interpreted to focus not on the beneficiaries of the rights, but on the source of the action that interferes with human rights. In this connection, it is the actions and activities within a State's territory or jurisdiction that circumscribe human rights obligations concerning climate change, regardless of the location of the beneficiaries of the rights. Consequently, since most GHG emissions causing climate change are emitted by industrialised nations, these bear the primary responsibility to ensure that their actions do not harm human rights.

Finally, the responsibility to protect, in connection with the principle of subsidiarity, requires that massive human rights violations resulting from climate change need to be effectively addressed, given the normative imperative of safeguarding human life and the dignity of humanity.

Obligations of the International Community under International Climate Conventions

The UNFCCC contains a number of principles and provisions that articulate a set of obligations on the international community - developed countries in particular - to respond to climate change. A fundamental principle of the UNFCCC is the "common but differentiated responsibilities" (CBDR) of developed and developing countries to respond to the threat of climate change.²⁴³ Under this principle, the largest burden to respond to climate change falls upon developed countries that have both contributed most greatly to the development of the problem, and have the greatest capacity to respond to global climate change. Indeed, the UNFCCC is explicit that "developed country Parties should take the lead in combating climate change and the adverse effects thereof."²⁴⁴ The principle of CBDR is imbedded in the Kyoto Protocol both by reference to the UNFCCC Article 3 principles and in the Protocol's substantive emission reduction obligations that apply only to developed country Parties as a first step towards addressing climate change.

²⁴³ UNFCCC, Article 3.1.

²⁴⁴ *Id.*

The UNFCCC also incorporates the precautionary approach to climate change - recognizing the potential for severe and irreversible damage and removing the lack of full scientific certainty as a justification for inaction.²⁴⁵ Clearly the types of damage that the Maldives could suffer as described above rise to the level of harm contemplated in this provision, providing further impetus for action to curb anthropogenic climate change. In addition, the notion of temporal equity is reflected in the UNFCCC Article 3.1 reference to protecting the interests of future generations.

In addition to the principles articulated in Article 3 of the UNFCCC, Article 4 contains a number of more specific obligations on Parties to respond to climate change. All Parties - subject to CBDR and national circumstances - are obliged to: develop and publish national inventories of greenhouse gas emissions and sinks; formulate and implement national programs that include measures to mitigate and adapt to climate change; and to report such information to the Conference of the Parties.²⁴⁶ Consistent with the principle of CBDR, Article 4 contains additional obligations for certain developed countries (or Annex I Parties). Annex I Parties are obligated to adopt policies and measures to mitigate climate change in order to demonstrate that they are taking the lead in modifying long-term trends in anthropogenic emissions of greenhouse gasses.²⁴⁷ This obligation for Annex I Parties under the UNFCCC was expanded and elaborated in the Kyoto Protocol, which provides specific numerical reduction targets relative to the 1990 baseline year for Annex I Parties only.²⁴⁸

In addition to the mitigation obligations in the UNFCCC and Kyoto Protocol, developed countries have additional obligations to provide financial and other assistance to developing countries. For example, Article 4.3 of the UNFCCC requires developed country Parties to provide assistance to developing country Parties for the "full agreed costs" of meeting their inventory and reporting obligations. Developed country Parties are also required to assist the most vulnerable developing countries meet the costs of adapting to the adverse effects of climate change and to "take all practicable steps" to ensure technology transfer sufficient to enable developing countries to meet their obligations under the UNFCCC.²⁴⁹

Notwithstanding the obligations recited above, many developing countries feel that the developed countries have not fully honoured their commitments to provide funding for mitigation and adaptation efforts and have not done enough to encourage technology transfer. Not surprisingly, these issues became a stumbling block during discussions in December 2007 in

²⁴⁵ UNFCCC, Art. 3.3.

²⁴⁶ UNFCCC, Art. 4.1(a), (b), and (j).

²⁴⁷ UNFCCC, Art. 4.2(a).

²⁴⁸ Kyoto Protocol, Art. 3.1.

²⁴⁹ UNFCCC, Art. 4.4 and 4.5.

Bali regarding the roadmap for negotiations to shape the post-2012 climate regime. The Bali Action Plan was finally agreed to almost 24 hours after the scheduled end of the conference when language proposed by India and others was incorporated in which the Parties agreed to consider “[n]ationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner...”²⁵⁰ While the language was immediately subjected to various interpretations, India’s intent was clearly to impose greater accountability upon developed countries in terms of their financial and technology transfer obligations to assist developing country mitigation efforts.

Not only does the climate regime impose particular obligations on developed countries, but it singles out those countries that are particularly vulnerable to the adverse effects of climate change for special treatment. The preamble to the UNFCCC recognizes “that low-lying and other small island countries, countries with low-lying coastal areas ... are particularly vulnerable to the adverse effects of climate change”. This principle is given further expression in Article 3.2 which suggests that the special needs and circumstances of such Parties be given full consideration. Finally, Articles 4.4 and 4.8 single out particularly vulnerable developing country Parties for special treatment with respect to funding, insurance and the transfer of technology. These provisions of the UNFCCC are echoed in the Kyoto Protocol. Under the Kyoto Protocol, Parties further agreed to “take all practical steps to promote, facilitate, and finance as appropriate, the transfer of, or access to, environmentally sound technologies, know-how, practices and processes pertinent to climate change...” and “to cooperate and promote at the international level...the strengthening of national capacity building.”²⁵¹

The UNFCCC and the Kyoto Protocol set out a good preliminary framework for cooperation as a basis for protecting and ensuring human rights. Unfortunately, however, the implementation of the obligations has lagged behind, both in terms of GHG reduction commitments as well as funding and technology transfer. No adequate mechanism has so far been put in place to ensure funding for the adaptation projects necessary for ensuring and protecting the human rights of the Maldives’ people or of other vulnerable communities. Similarly, the obligations to transfer necessary mitigation or adaptation technologies to developing countries have not been operationalised. Indeed, the failure to adequately implement funding and technology transfer provisions of the UNFCCC and Kyoto Protocol led developing countries to insist that the Bali Action Plan include language designed to ensure that such obligations be “measurable, reportable, and verifiable” in the next phase of the climate regime.²⁵² Moreover, not all members

²⁵⁰ UNFCCC, Report of the Conference of the Parties on its Thirteenth Session, held in Bali from 3-15 December 2007, FCCC/CP/2007/6/Add.1*, 14 March 2008, Decision 1.CP.13, Bali Action Plan, para. 1(b)(ii).

²⁵¹ Kyoto Protocol, Art. 10 (c) and (e).

²⁵² UNFCCC, Report of the Conference of the Parties on its Thirteenth Session, held in Bali from 3-15 December 2007, FCCC/CP/2007/6/Add.1*, 14 March 2008, Decision 1.CP.13, Bali Action Plan, para. 1(b).

of the international community, including some of the major emitters, have been willing to cooperate, let alone take on specific reduction commitments. These shortfalls all point to potential violations of human rights obligations under various human rights instruments. The ongoing climate negotiations provide the opportunity for members of the international community to show that they take their human rights obligations seriously.

Finally, it should be noted that efforts to mitigate or adapt to climate change may themselves impact a number of human rights. The Kyoto Protocol recognizes the possibility that mitigation efforts may have negative consequences and seeks to minimize those effects by imposing an obligation on Annex I Parties to strive to implement their commitments in a way that minimises the “adverse social, environmental, and economic impacts on developing country Parties, particularly those identified in Article 4, paragraphs 8 and 9, of the Convention.”²⁵³

One of the flexibility mechanisms under the Kyoto Protocol is the Clean Development Mechanism (CDM), which allows emission reduction credits to be earned based on public and/or private project-based investment in non-Annex I countries that results in reduced or avoided greenhouse gas emissions.²⁵⁴ While a detailed discussion of the CDM is beyond the scope of this submission, it is important to note that the modalities and procedures adopted by the Parties to the Kyoto Protocol include provisions designed to ensure that stakeholders (including communities and individuals impacted by a CDM project) have certain procedural rights as part of the approval process.²⁵⁵ In particular, these rights include access to information about the proposed project and the opportunity to comment as part of the decision-making process. The project proponent is required to address such comments as part of its application process under the Protocol.

V. CONCLUSION AND NEXT STEPS

The impacts of climate change have important implications for the human rights recognised in international human rights instruments, including the Universal Declaration of Human Rights (UDHR) as codified in the International Covenant on Civil and Political Rights (ICCPR) and the

²⁵³ Kyoto Protocol, Art. 3.14. The reference to Article 4 of the Convention refers specifically to, *inter alia*, small island states, countries with low-lying coastal areas and least developed countries.

²⁵⁴ Kyoto Protocol, Art. 12. For a general description of the CDM, *See* Farhana Yamin and Joanna Depledge, *The International Climate Change Regime* (2004), at 159 et seq.

²⁵⁵ *See* United Nations Framework Convention on Climate Change, Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol, Report of the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol on its First Session, held in Montreal from 28 November to 9 December 2005, U.N. Doc. FCCC/KP/CMP/2005/8/Add.1 at Annex para. 1(e) (2005), available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a01.pdf#page=7> (accessed 4 Sept. 2008).

International Covenant on Economic, Social, and Political Rights (ICESCR), as well as the Convention on the Rights of the Child (CRC) and the Convention on the Elimination of All forms of Discrimination Against Women (CEDAW). Under these Treaties, the State has the primary duty not only to respect the covered rights, but to protect and fulfil these rights through positive action. All Parties to international human rights conventions are obligated to take measures to prevent the violation of climate change-affected rights.

In this regard, the international community has the duty both to ensure that greenhouse gases are reduced or stabilized, as well as to provide funding for adaptation. In the Maldives, adaptation measures have indeed been made possible with the support of the international community. However, such measures will only realistically cover a tiny fraction of the needs of the Maldives. Ultimately, therefore, only international cooperation to stabilize GHG emissions at scientifically agreed-upon safe levels can prevent the most catastrophic climate change impacts. *The Maldives on its own is incapable of preventing the violations of fundamental human rights that are already taking place as a result of climate change – violations which will occur on a scale of increasing magnitude should the most likely climate change scenarios be realised.*

Consequently, the international community must take into account international human rights obligations in the course of negotiations addressing climate change. The outcome of the UNFCCC negotiation process should ensure that the right of Small Island peoples to self-determination will not be violated by climate change impacts. Further, States must give due attention to threatened economic, social, and cultural rights in the course of negotiation of the international climate change conventions. This attention is not just a moral obligation. It is a legal duty arising from the ICESCR and other human rights law.

This submission provides incontestable and definitive proof that a strong relationship exists between climate change and the enjoyment of human rights. Human rights violations are occurring on an increasingly significant scale as both a direct and indirect consequence of human-induced climate change. Moreover, because climate change and related environmental degradation do not respect national borders, the Maldives alone cannot take the necessary remedial measures in order to promote and protect those rights of its citizens threatened by climate change. Existing adaptation measures, while important, are grossly inadequate to safeguard the rights of people in affected communities. However, even a major increase in adaptation funds would, in the final analysis, be insufficient to protect the people of the Maldives from the gross and systematic violation of their human rights – including the right to life and the right to self-determination - that will surely occur if current IPCC projections are accurate and if the international community, led by the rich industrialised countries, fails to undertake meaningful mitigation actions.

The conclusion that climate change undermines and results in the widespread violation of human rights in the Maldives and in all other vulnerable countries around the world; and the related fact

that the global character of the problem makes it impossible for individual States like the Maldives to promote and protect threatened rights on their own; in-turn raises the question of what actions the international community should take to respond.

It is clear that any solution to climate change must be based on an effective and meaningful multilateral agreement reached through the UNFCCC negotiation process. It is equally clear that for those negotiations to reach a successful conclusion in Copenhagen in late 2009, world governments must fully understand the current and projected impacts of climate change on people and communities around the world. Human rights discourse offers an ideal lens through which to focus the attention of the international community on these human impacts. The challenge facing both the human rights community and the climate change community is therefore how best to integrate human rights considerations and thinking into multilateral climate change negotiations in a manner which complements and reinforces those negotiations; and, at the same time, to integrate climate change considerations into international human rights discourse in a manner that takes sufficient account of the major implications of global warming for the full enjoyment of human rights.

There are a number of options open to the international community to address these dual challenges.

In terms of integrating human rights considerations into the Bali process of climate change negotiations, UN Member States, through Human Rights Council Resolution 7/23, have already taken steps in this direction by requiring the Council to send the OHCHR Study on human rights and climate change, together with a summary of the Council's deliberations on the subject, to the Conference of Parties to the UNFCCC for the latter's consideration. It is important to build-on this initial step by considering the relative merits of, for example, OHCHR or Special Procedure participation in IPCC and UNFCCC discussions, or the drafting of practical guidelines on how to promote and protect human rights while implementing international, regional or national mitigation and adaptation strategies. Such steps might represent a manageable, practical and useful contribution on the part of the international human rights community to the ongoing UNFCCC talks.

Similarly, the fact that the Human Rights Council moved to adopt Resolution 7/23 by consensus, taken together with explicit climate change references in other resolutions such as Resolution S-7/1 on the right to food²⁵⁶ and Resolution 6/27 on the right to adequate housing as a component

²⁵⁶ PP10 states: "*Recognizing* the complex character of the worsening of the current global food crisis, in which the right to adequate food is threatened to be violated on a massive scale, as a combination of several major factors, including macroeconomic factors, also impacted negatively by environmental degradation, desertification and global climate change, natural disasters and the lack of the necessary technology to confront its impact, particularly in developing countries and least developed countries",

of the right to an adequate standard of living²⁵⁷, demonstrates a growing awareness among human rights practitioners that climate change must be taken into account when addressing a wide-range of human rights issues – especially economic, social and cultural rights. These developments, building-on others discussed earlier in this submission, also demonstrate an evolving interest in and concern about the complex inter-relationship between human rights, environmental protection, and sustainable development – including, *inter alia*, the concept of a universal right to a safe and sustainable environment²⁵⁸. However, at present these steps remain largely *ad hoc* in nature. Thus, the international community should consider ways to develop a more consistent and cohesive response, for example, by: establishing a Special Rapporteur or Special Representative of the UN Secretary-General on human rights and climate change; by reviving the mandate of Special Rapporteur on human rights and the environment (which would offer a more holistic way of addressing the environment-human rights interface including and encompassing issues such as climate change and the illegal dumping of toxic waste); formally requesting existing Special Rapporteurs to address the implications of climate change within their mandates; requesting the Committee on Economic, Social and Cultural Rights to produce an Opinion on the obligations incumbent upon States under ICESCR to address climate change; or organising an international conference (OHCHR and UNEP) on human rights and the environment.

The Maldives Government, with this submission, does not expressly favour or reject any of the above options. Nor does it suggest that this is an exhaustive list. The Maldives merely raises the point that these are important issues and questions that require further thought.

²⁵⁷ OP3 states: “*Expresses concern* at the prevalence of homelessness and inadequate housing, the growth of slums worldwide, forced evictions, the increase in challenges faced by migrants in relation to adequate housing, as well as of refugees in conflict and post-conflict situations, challenges to the full enjoyment of the right to adequate housing caused by the impact of climate change, natural disasters and pollution, insecurity of tenure, unequal rights of men and women to property and inheritance, as well as other violations of and impediments to the full realization of the right to adequate housing.

²⁵⁸ On 17 September 2008, the Permanent Mission of the Maldives to the United Nations Office at Geneva, together with the Permanent Mission of New Zealand and the Oxford Union, organized a Chatham House Debate on the motion: “This House believes that climate change violates the universal right of all Peoples to live in a safe and sustainable environment” (Human Rights Council Side-Event, Palais de Nations, Geneva).