7.1 Introduction

“Climate change is one of the most serious challenges mankind has ever faced and has serious implication for the realisation of human rights ... A Human rights analysis brings into focus how lives of individual and communities are affected and why human rights safeguards must be integrated into policies and measure to address climate change” (High Commissioner for Human Rights, Navi Pillay, 2009)628

The Human Rights Council has played a central role in drawing attention to the human rights dimensions of climate change. Importantly, in its resolution 10/4 (25 March 2009), the Council recognizes that: “Climate change-related impacts have a range of implications, both direct and indirect, for the effective enjoyment of human rights.” This...
was the first time the Council, or any other an inter-governmental body, unequivocally affirmed the negative human rights implications of climate change.

A OHCHR study on climate change and human rights (A/HRC/10/61) considered by the Human Rights Council in March 2009 gives examples of human rights affected by climate change-related effects and sets out some of the reasons why it is important and useful to apply a human rights framework to climate change.629

The Human Rights Council in its resolution 10/4 (25 March 2009) affirms that “human rights obligations and commitments have the potential to inform and strengthen international and national policy-making in the area of climate change.”

International human rights norms and standards do not provide guidance as to specific technical and scientific aspects of climate mitigation and adaptation. Rather, human rights norms and standards set the parameters for how Government should act in response to climate change-related problems. More specifically, the integration of human rights in climate change-related action means giving due consideration to how human rights are affected by climate change impacts and by policies and measures to address climate change. It moves us beyond the aggregate cost benefit analysis which tend to dominate in climate change debates, drawing attention to the need for a more disaggregated and sophisticated analysis to identify who will be affected by climate change and how, with a view to adjusting relevant policy measures accordingly. Equally, the human rights principles of equality, non-discrimination, transparency and accountability provide guidance for design and implementation of climate change policies and measures.630

Eight treaty bodies of the United Nations human rights treaty system have both monitoring and interpretive procedures.631

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630 The Human Rights Dimension of Climate Change – Hari Talk Insight Series 2/25/10. Visited on 10/1/14 8:15 P.M
i. The International Covenant on Civil and Political Rights (ICCPR), whose treaty body is the Human Rights Committee;

ii. The International Covenant on Economic, Social and Cultural Rights (ICESCR), which has the Committee on Economic, Social and Cultural Rights.

iii. The Convention against Torture (CAT), which has the Committee Against Torture.

iv. The Convention on the Elimination of Racial Discrimination (CERD), which has the Committee on the Elimination of Racial Discrimination;

v. The Convention on the Elimination of Discrimination Against Women (CEDAW), which has the Committee on the Elimination of Discrimination Against Women;

vi. The Convention on the Rights of the Child (CRO, whic11 has the Committee on the Rights of the Child;

vii. The Convention on the Protection of the Rights of All Migrant Workers (CMW), which has the Committee on Migrant Workers; and

viii. The Convention on the Rights of Persons with Disabilities (CRPD), which has the Committee on the Rights of Persons with Disabilities.

State Parties to each of these treaties are required to submit periodic reports detailing “the measures which they have adopted and progress made in achieving the observance of the rights recognized.” The treaty bodies then examine the reports and communicate concerns and recommendations through "Concluding Observations.”

7.2 Current and Projected Impacts of Climate Change upon Humans

The human rights impacted by climate change have been recognized in many

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international human rights instruments, including the Universal Declaration of Human Rights (UDHR), the International Covenant on Civil and Political Rights (ICCPR), the International Covenant on Economic, Social and Cultural Rights (ICESR), the Convention on the Rights of the Child (CRC), the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), the Convention on the Elimination of Racial Discrimination (CERD), and selected Conventions adopted under the auspices of specialized agencies of the United Nations, in particular the ILO. Under these international treaties, the State has the primary duty not only to respect the covered rights, but to protect and fulfill these rights through positive action.

**Current Impacts**

i. There will be more deaths, disease, and injury due to the increasing frequency and intensity of heat waves, floods, storms, fires, and droughts.

ii. Rising sea levels will increase the risk of death and injury by drawing up to 20 per cent of the world’s population live in river basins that are likely to be affected by increased flood hazard by the 2080s.

iii. Heat waves are likely to increase deaths among elderly or chronically sick people, young children, and the socially isolated. Europe’s 2003 heat wave—induced by climate change—resulted in 27,000 extra deaths.

iv. Future climate change is expected to put close to 50 million more people at risk of hunger by 2020, and an additional 132 million people by 2050.

v. In Africa, yields from rain-fed agriculture could fall by 50 per cent as soon as 2020.

vi. In parts of Asia, food security will be threatened due to water shortages and rising temperatures. Crop yields could fall by up to 30 per cent in Central and South Asia by 2050.

vii. Water: By 2020, between 75 million and 250 million people in Africa are likely to face greater water stress due to climate change. Reduced water flow from mountain glaciers could affect up to one billion people in Asia by the 2050s.
viii. Natural Resources: Approximately 20-30 per cent of plant and animal species assessed so far are likely to be at increased risk of extinction if average global temperatures rise more than 1.5—2.5°C. Coral bleaching and coastal erosion will affect fish stocks currently the primary source of animal protein for one billion people.

ix. Property and Shelter: Millions more people risk facing annual floods due to sea-level rise by the 2080s, mostly in the mega-deltas of Asia and Africa. On Small islands, too, sea-level rise is expected to exacerbate inundation, storm surge, and erosion, threatening vital infrastructure, settlements, and facilities that support the livelihoods of island communities.

x. Child malnutrition will increase, damaging growth and development prospects for millions of children.

xi. Increasing floods and droughts will lead to more cases of diarrhoea and cholera. Over 150,000 people are currently estimated to die each year from diarrhea, malaria, and malnutrition caused by climate change.

xii. Changing temperatures will cause some infectious diseases to spread into new areas. It is estimated that 220–400 million more people will be at risk of malaria. The risk of dengue fever is estimated to reach 3.5 billion people by 2085 due to climate change.

Impact on Population and Livelihood

Direct impact on the population and their livelihoods

i. Rising sea-level and storms are direct causes of the flooding of territories, population displacement, salination of fresh-water resources, and diminishing habitable or cultivable land. These impacts in turn affect, for example, the right of self-determination, the right not to be deprived of one's means of subsistence, the right to own property, the right to life, the right to work, and the right to development.

ii. Rising surface temperatures also leads to greater occurrence of diseases such as
scrub typhus, diarrheal diseases and other mosquito-borne diseases. These impacts affect, for example, the right to health and the right to life.

iii. The increasing number and intensity of weather events affects, for example, the rights to life, health, and housing.

iv. Receding coastlines and permafrost melting cause damage to land, houses, and other infrastructure, affecting, for example, the right to an adequate standard of living, including the right to housing.

v. Changes in precipitation patterns and the melting of glaciers affect access to water, an essential component of the right to water, as well as the ability to irrigate lands and secure access to food, an essential component of the right to food.

vi. Mitigation actions relating to reducing emissions from deforestation and forest degradation (RED D) will affect, perhaps profoundly, the livelihoods, lifestyles, living conditions and cultures of indigenous peoples and other forest dwellers, affecting, for example, the right to enjoy culture and their way of life.

The Advisory Council of Jurists of the Asia-Pacific Forum on National Human Rights Institutions recently endorsed the idea that the protection of the environment is a vital part of contemporary human rights doctrine and a *sine qua non* for numerous human rights, such as the right to health and the right to life. However, the ACJ found that current legal instruments and trends in relation to environment law are insufficient to support the existence of a clear and specific right to an environment of a particular quality in international law.

Even without the articulation of a specific right to the environment, there are many broad rights recognised in the UDHR, ICCPR and ICESCR, as well as in the *Convention against Torture* (CAT), and the *Convention on the Rights of the Child*.

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635 Advisory Council of Jurists *Observations and Recommendations* note 10 at p. 3.

636 *Convention against Torture and Other Cruel Inhuman or Degrading Treatment or Punishment* opened for signature 12 October 1984, 1465 UNTS 85 (entered into force 16 June 1987). Australia ratified the CA
(CRC), which are relevant to the situation of people whose way of life comes under threat from climate change. States have a responsibility under these instruments to take action to remedy the direct and indirect threats to these rights posed by climate change.

7.3 Human Rights and Climate Change

7.3.1 The Right to Life

The right to life is protected in both the UDHR and the ICCPR. Article 3 of the UDHR provides everyone has the right to life, liberty and security of person. Article 6(1) of the ICCPR provides 'every human being has the inherent right to life. This right shall be protected by law. No one shall be arbitrarily deprived of his life. The right to life of children also receives specific protection in article 6 of the CRC. In its General Comment on the right to life, the UN Human Rights Committee warned against interpreting the right to life in a narrow or restrictive manner. It stated that protection of this right requires the State to take positive measures and that 'it would be desirable for state parties to take all possible measures to reduce infant mortality and to increase life expectancy ...'.

The quality of the environment affects the ability of people to enjoy the universally held right to life. Direct impacts include the increased incidents of natural disasters, while indirect impacts include poorer standards of health, nutrition access to clean drinking water and more prove to diseases.

7.3.2 The Right to Adequate Food

The right to adequate food is recognized in several international instruments; most comprehensively in the ICESCR. Pursuant to article 11(1), State parties recognize ‘the right to everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living
conditions,’ while pursuant to article 11(2) they recognize that more immediate and urgent steps may be needed to ensure ‘the fundamental right to freedom from hunger and malnutrition.’ The UN Special Rapporteur on the Right to Food has defined the right as follows:

The right to adequate food is a human right, inherent in all people, to have regular, permanent and unrestricted access, either directly or by means of financial purchases, to quantitatively and qualitatively adequate and sufficient food corresponding to the culture traditions of people to which the consumer belongs, and which ensures a physical and mental, individual and collective fulfilling and dignified life free of fear.\(^\text{640}\)

Climate change will have an impact on food security by reducing the availability of food, changing access to food, worsening the stability of food supply and affecting the utilization of food. People of outer islands in particular are in danger of suffering from hunger and chronic malnutrition.

Regional food production is likely to decline because of increased temperatures accelerating grain sterility; shift in rainfall patterns rendering previously productive land infertile, accelerating erosion, desertification and reducing crop and livestock yields; rising sea levels making coastal land unusable and causing fish species to migrate; and an increase in the frequency of extreme weather events disrupting agriculture.

### 7.3.3. The Right to Water

As the earth gets warmer, heat waves and water shortage will make it difficult to access safe drinking water and sanitation. There will be lower and more erratic rainfall in the tropical and sub-tropical areas of the Asia and the Pacific.

The 2007 OHCHR Report addressed the scope and content of human rights obligations related to safe drinking water and sanitation. Under ICCPR and ICESCR, the right to water provides for “equal and non-discriminatory access to a sufficient amount of safe drinking water for personal and domestic issues… to sustain life and health.”

\(^{640}\) Jean Ziegler, *The Right to Food* (Report by the Special Rapporteur on the right to food to the Commission on Human Rights 57\(^{\text{th}}\) session, 2001) UN Doc E/CN. 4/2001/53 at p.2
The right to water is also specifically articulated in the article 24 of the CRC and article 14(2) (h) of the Convention on the Elimination of Discrimination against Women (CEDAW).\textsuperscript{641} In 2002 the UN Committee on Economic, Social and Cultural Rights recognized that water itself was an independent right.\textsuperscript{642} Drawing on a range of international treaties and declarations it stated, ‘the right to water clearly falls within the category of guarantees essential for securing an adequate standard of living, particularly since it is one of the most fundamental conditions for survival’.\textsuperscript{643}

7.3.4 The Right to Health

Health includes various necessary factors to dead a healthy like food, nutrition, housing access to safe water and a healthy environment. Climate change is likely to increase deaths from malnutrition, stress and infectious diseases worldwide.

A 2003 joint study by the World Health Organization and the London School of Hygiene and Tropical Medicine states that global warming may already be responsible for more than 160,000 deaths a year from malaria and malnutrition; a number that could double by 2020.\textsuperscript{644} Climate change will have many impacts on human health. It will affect the intensity of a wide range of diseases – vector-borne, water-borne and respiratory.\textsuperscript{645} In the pacific, changes in temperature and rainfall will make it harder to control dengue fever.\textsuperscript{646} Warmer climate will provide a more hospital environment for disease carrying mosquitoes.\textsuperscript{647}

Article 25 of the UDHR states that ‘everyone has the right to a standard adequate for the health and well-being of himself and his family’. Article 12(a) of the ICESCR recognises the right of everyone to ‘the enjoyment of the highest standard of physical and mental health.’ The right to health is also referred to in a number of articles in the CRC.

\textsuperscript{643} Ibid
\textsuperscript{644} Shaoni Bhattacharya, ‘Global warming kills 160,000 a year’, New Scientist, 1 October 2003.
\textsuperscript{645} Working Group on Climate Change, Up in Smoke – Asia and the Pacific, note 2, at p.6.
\textsuperscript{646} ‘Expert says climate change will spread global disease’. Agence France-France-Presse, 11 September 2007.
\textsuperscript{647} Dupont and Pearman, Heating up the Planet, note 21, at p.37.
Article 24 stipulates that state parties must ensure that every child enjoys the ‘highest attainable standard of health’.

The right to development is affected by impacts on food and water security, decreases in the earth’s landmass, drastic weather patterns and change in ecosystem.

Deprivation of properly may be the result of climate change mainly in coastal areas which have our effect on land uses as result of changing weather patterns.

7.3.5 The Right of Self Determination

Article 1 of both ICCPR and the ICESCT, as well as in Articles 1 and 55 of the UN Charter recognized the right of the peoples to self determination.

If climate change continues unmitigated, sea-level rise is expected to result in the total inundation of small island states. It 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 inhabitable. Therefore, climate change impacts constitute a threat to the enjoyment of the right of certain people to self-determination.

The rights of the Indigenous Peoples: According to the IPCC AR4, the communities who live in marginal lands and whose livelihoods are highly dependent on natural resources are among the most vulnerable to climate change. Biodiversity loss as a result of adverse impacts of climate change will affect indigenous peoples in many different ways, such as depriving them of important food sources and reducing their ability to cope with pests and diseases with the help of medicinal plants. Indigenous peoples still have limited or in many cases no participation in the decision-making processes of the UNFCCC (the REDD - Reduced Emissions from Deforestation in Developing countries- mechanism for instance), despite the fact that their rights and their experience in sustainable

\[\text{IUCN, Indigenous and Traditional Peoples and Climate Change}
\text{http://www2.ohchr.org/english/issues/climatechange/docs/IUCN.pdf visited on 17/3/14 at 00:22}\]
forest management make their participation in these fora imperative.\textsuperscript{649} Moreover, the implementation of the three flexible mechanisms of the Kyoto Protocol\textsuperscript{650}, often without their prior and informed consent also causes human rights violations, like forced relocations or introduction of/environmental contaminants, etc.

Climate change will also have impacts on emergency response and disaster recovery, particularly for vulnerable developing countries. It also threatens to drive millions of people around the globe to migrate within and across State borders. Finally, international and national decision-makers need to be open and welcome a thought-provoking debate on climate change issues in order to make better informed decisions on how to tackle this global phenomenon.

According to the views of the ACJ and the Human Rights and Equal Opportunities Commission, any attempt to define a human right to environment must address the following issues:

i. The right of all persons to a safe, healthy and ecologically sound environment that is protected, preserved and improved both for the benefit of present and future generation, and in recognition of the inherent value of ecosystems and biodiversity.

ii. The States responsibility to protect, preserve remediate and improve the environment, noting the principle of common but differentiated responsibility.

iii. The responsibility of all individuals and other non-state actors to respect, protect and preserve the environment and remedy any degradations of the environment/or which they have been responsible.

iv. The right of all individuals and other non-state actor’s to full information about

\textsuperscript{649} Global forest Coalition, International Expert Group Meeting on Indiagenous Peoples and Climate Change Darwin, Australia 2-4 April 2008, “Climate Change, Forest Conservation and Indigenous Peoples Rights”
http://www2ohchr.org/english/issues/climatechange/docs/submission/Global_Forest_Coalition_Indigenous_Peoples_ClimateChange.pdf visited on 17/3/14 at 00:25

\textsuperscript{650} Emissions Trading, Joint Implementation and Clean Development Mechanism.
environmental issues, the right to participate in decision-making processes on environmental issues and the right to access remedies.

v. The potential conflict between environmental protection and the right to culture.

vi. The needs of groups that are disproportionately affected by environmental harms, and groups, including indigenous peoples, that have a special cultural and spiritual connection with the environment.

vii. Specific protection for the environmentally displaced and affected.

viii. The principle of international solidarity shared responsibility and the provision of aid including capacity-building and technical assistance, in respect of environmental harm and disasters.

7.4 The European Court

Importance of the work of the European Court of Human Rights concerning the linkages between environmental harm and the violation of human rights is incontestable. The Court has already identified in its case-law issues related to the environment which could affect the right to life (Article 2), the right to respect for private and family life as well as the home (Article 8), the right to a fair trial and to have access to a court (Article 6), the right to receive and impart information and ideas (Article 10), the right to an effective remedy (Article 13) and the right to the peaceful enjoyment of one's possessions (Article 1 of Protocol No. 1).\textsuperscript{651} Court lays down a positive obligation on States to take appropriate steps to safeguard the lives of those within their jurisdiction public authorities may be required to take measures to prevent infringements of the right to life as a result of dangerous activities. This involves putting in place a legislative and admin initiative framework. Secondly, where loss of life may be the result of an infringement of the right to life, the relevant public authorities must provide an adequate response, judicial or otherwise. They must ensure that the legislative and administrative framework is properly implemented and that breaches of the right to life are repressed and punished as


Respect for private and family life as well as the home and the environment (Article 8 of the ECHR): This right implies respect for the quality of private life as well as the enjoyment of the amenities of one's home. While the objective of Article 8 is essentially that of protecting the individual against arbitrary interference by public authorities, it may also imply in some cases an obligation on public authorities to adopt positive measures designed to secure the rights enshrined in this Article. This obligation does not only apply in cases where environmental harm is directly caused by State activities, but also when it results from private sector activities. Public authorities must ensure that such measures are implemented so as to guarantee rights protected under Article 8.

Protection of property and the environment (Article 1 of Protocol no. 1 to the ECHR): Individuals are entitled to the peaceful enjoyment of their possessions, including protection from unlawful deprivation of property. The general interest in the protection of the environment can justify certain restrictions by public authorities on the individual right to the peaceful enjoyment of one's possessions. Such restrictions should be lawful and proportionate to the legitimate aim pursued. On the other hand protection of the individual right to the peaceful enjoyment of one's possessions may require public authorities to ensure certain environmental standards. The effective exercise of this right does not depend merely on the public authorities duty not to interfere, but may require them to take positive measures to protect this right.

Information and communication on environmental matters and the right to receive and impart information and ideas on environmental matters (Article 10 of the ECHR): There is strong public interest in enabling individual and groups to contribute to public debate through the dissemination of information and ideas. Restrictions by public authorities on the right to receive and distribute information and ideas, including on environmental matters, must be prescribed by law and follow a legitimate aim.

Access to information on environmental matters (Articles 2 and 8 of the ECHR): Public authorities may be under a specific obligation to secure a right of access to information in relation to environmental issues in certain circumstances. When public
authorities engage in dangerous activities which they know involve adverse risks to health, they must establish an effective and accessible procedure to enable individuals to seek all relevant and appropriate information.

**Decision-making processes in environmental matters and public participation in them:** In the process of making decisions related to the environment, public authorities must take into account the interests of individuals who may be affected. In this context, it is important that the public be able to make representations to the public authorities. Where public authorities consider complex issues of environmental and economic policy, the decision-making process must involve appropriate research and studies in order to predict and evaluate the effects on the environment and to enable them to strike a fair balance between the various interests at stake.

**Access to justice and other remedies in environmental matters (Article 13 of the ECHR):** Several provisions of the Convention guarantee that individual should be able to commence judicial or administrative proceedings in order to protect their rights. The right of access to a court under Article 6 will as a rule, come into play when a "civil right or obligation", within the meaning of the Convention, is the subject of a "dispute". This right includes the right to see final and enforceable court decisions executed and implies that all parties, including public authorities, must respect court decisions. The right of access to a court, guaranteed by Article 6, applies if there is a sufficiently direct link between the environmental problem at issue and the civil right invoked. In case of a serious, specific and imminent environmental risk, Article 6 may be invoked if the danger reaches a degree of probability which makes the outcome of the proceedings directly decisive for the rights of those individual concerned. In addition to the right of access to a court as described above, Article 13 guarantees that individuals claiming that their rights and freedoms as set forth in the Convention have been violative, must have an effective remedy before a national authority. However, the protection afforded by Article 13 does not go so far as to require any particular from of remedy. The State has a margin of appreciation in determining how it gives effect to its obligations under this provision.

Indicatively, the cases in the below shows that where a state is aware of a threat to human rights, regardless of the cause, it has a positive obligation to act because state
inaction would exacerbate the situation. This is particularly significant in the climate change context where it is often difficult to establish the causal connection between the activities (or omissions) of the state or of private actors who have emitted greenhouse gas and the human rights impact.

**Lopez Ostra v. Spain**\(^652\): In this case, the complainant lived near a waste water treatment plant, which caused serious health problems and nuisance to residents in the town. The Court held that severe environmental pollution may affect a person's well-being and prevent them from enjoying their homes in such a way as to affect their private and family life (Article 8). The Court rules that the State had a positive duty to protect that right (e.g. by regulating the plant) and that it had failed to do so.

**Balmer - Schafroth v. Switzerland**\(^653\) The Court examined whether the applicants could successfully invoke the right of access to a court in proceedings concerning the granting of operating license for a nuclear power plant The Court recognised that there had been a genuine and serious dispute between the applicants and the decision-making authorities about the extension of operating licenses for the nuclear power plants. The applicants had a "right" recognised under Swiss law to have their life. Physical integrity and property adequately protected from the risks entailed by the use of nuclear energy. The Court found that the decisions were of a judicial character. It had to determine whether the outcome of the proceedings in question had been directly decisive for the rights asserted by the applicants, i.e. whether the link between the public authorities' decisions and the applicants' rights to life, physical integrity and protection of property was sufficiently close to bring Article 6 into play. The Court found that the applicants had not established a direct link between the operating conditions of the power station and the right to protection of their physical integrity, as they had failed to show that the operation of the power station had exposed them personally to a danger that was not only serious but also specific and, above all imminent The Court ruled therefore that Article 6 was not


applicable.

Guerra and Others v. Italy\textsuperscript{654}: In this case, a chemical factory situated near the applicants' home, was classified as high-risk. The applicants did not complain about the action, but rather about the inaction of the public authorities. The Court concluded that the public authorities had not fulfilled their obligation to secure the applicants right to respect for their private and family life, on the grounds that the applicants had not received essential information from the public authorities that would have enabled them to assess the risks which they and their families might run if they continued to live in the area. The Court ruled that there had been a violation of Article 8.

Kyrtatos v. Greece\textsuperscript{655}: The applicants brought a complaint under Article 8 arguing that urban development had led to the destruction of a swamp adjacent to their property, and that the area around their home had lost its scenic beauty. The Court emphasized that domestic legislation and certain other international instruments rather than the Convention are more appropriate to deal with the general protection of the environment. The purpose of the Convention is to protect individual human rights, such as the right to respect for the home, rather than the general aspirations or needs of the community taken as a whole. In this case, the Court found no violation of Article 8. However, the Court found that by failing for more than seven years to take the necessary measures to comply with two final court decisions quashing building permits on the ground of their detrimental consequences on the environment, the Greek authorities had deprived the provisions of Article 6, paragraph 1, of any useful effect.

Hatton and Others v. UK\textsuperscript{656}: This case concerned aircraft noise generated by an international airport and the regulatory regime governing it. The Court considered whether the applicants had had a remedy at the national level to enforce their Convention


rights under Article 8. The applicants argued that the scope of the judicial review provided by the English courts had been too limited. At the time, the courts were only competent to examine whether the authorities had acted irrationally, unlawfully or manifestly unreasonably. The English courts had not been able to consider whether the introduced increase in night flights represented a justifiable limitation on the right to respect for private and family lives, or for the homes of those who lived near Heathrow Airport. The Court accordingly held that there had been a violation of Article 13.

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**Oneryildiz v. Tumev**

In this case, 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." 39 people who were living in a sum below a rubbish tip in Istanbul died when a methane gas expansion occurred. The tip had been poorly managed by the Istanbul City Council which had failed to respond to an expert report warning of the dangers of an explosion. The Court held that there had been a violation of the right to life Article 2, because even though the state is not obliged to take action in relation to every perceived threat to life, where a state knows or ought to have known of a real and immediate risk to life, it has a positive obligation to act. The state had failed to communicate essential information to residents about the risks of where they lived.

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**Gonaiz-Limrrarra and Others v. Spain**

One of the applicants in this case was an association which had brought proceedings against plans to build a dam in a village, which would result in three nature reserves and a number of small villages being flooded. Relying on Article 6, paragraph I, the applicants submitted that they had not had a fair hearing as they had been prevented from taking part in the proceedings concerning the referral to the Constitutional Court of the preliminary question, whereas the State and State Counsel's Office had been able to submit observations to the Constitutional Court.

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657 2004, Application no.22798/65

658 2004, Application no.17798/90
The Government contested the applicability of Article 6 arguing that the dispute did not concerned pecuniary or subjective rights of the association, but only the general question of legality and collective rights. The Court rejected this view. Although the dispute was partly about the defence of the general interest, the association also complained about a concrete and direct threat to the personal possessions and the way of life of its members. Since the action was, at least partly, "pecuniary" and "civil" in nature, the association was entitled to rely on Article 6 paragraph 1 which was therefore applicable. The Court stressed that the judicial review provided by the Constitutional Court had been the only means for the applicants to challenge, albeit indirectly, the interference with their property and way of life. However, the Court found that there had been no violation of Article 6 paragraph 1.

Budaveva v. Russia\footnote{659}{(2007) App. No. 55723/00} In this case, the homes of many residents in the town of Tyrnauz were destroyed by a mudslide. The complainant argued that the Russian government knew about the risk of the mudslide and failed to take preventive action by reinforcing a dam wall and failed to warn the residents of the imminent risk. The Court has recently accepted the complaint as admissible.

7.5 Indigenous Peoples and Climate Change

Indigenous and other traditional peoples are only rarely considered in academic, policy and public discourses on climate change, despite the fact that they will be greatly impacted by impending changes. Their livelihoods depend on natural resources that are directly affected by climate change, and they often inhabit economically and politically marginal areas in diverse, but fragile ecosystems. Symptomatic of the neglect of indigenous peoples, the recently released IPCC II report summary on climate change impacts\footnote{660}{http://www.ipcc.ch/SPM13apr07.pdf} makes only scarce mention of indigenous peoples, and then only in polar regions and merely as helpless victims of changes beyond their control. The IPCC III report\footnote{661}{http://www.ipcc.ch/SPM040507.pdf} on mitigation of climate change does not consider the role of indigenous

\footnote{659}{http://www.coe.int/t/e/human_rights/cddh/1._publications/EnvironmentManual_en.pdf visited on 18/3/14 12:23 PM}
\footnote{660}{http://www.coe.int/t/e/human_rights/cddh/1._publications/EnvironmentManual_en.pdf visited on 18/3/14 12:23 PM}
\footnote{661}{http://www.coe.int/t/e/human_rights/cddh/1._publications/EnvironmentManual_en.pdf visited on 18/3/14 12:23 PM}
peoples. This view of indigenous peoples as passive and helpless at best, and as obstructionist and destructive at worst is not new, with roots going back to colonial periods and reoccurring in contemporary discussion of development, conservation, indigenous rights, and indigenous knowledge. Our aim is to shift the focus to indigenous people as primary actors in terms of global climate change monitoring, adaptation and innovation. We believe theirs should be a voice in policy formation and action.

Indigenous and other local peoples are vital and active parts of many ecosystems and may help to enhance the resilience of these ecosystems. In addition, they interpret and react to climate change impacts in creative ways, drawing on traditional knowledge as well as new technologies to find solutions, which may help society at large to cope with the impending changes. We contrast the IPCC summaries with the recent Kauai Declaration “Ethnobotany: The Science of Survival”:

“Such vital environmental resources as the air we breathe, the quality of the water we drink, the topsoil upon which our agriculture depends, the relatively stable global climate we have enjoyed until recently, and the global stock of biodiversity are all being degraded rapidly. Concurrently, human cultural diversity is being eroded rapidly everywhere. For example, one of the remaining 7,000 languages is being lost every week, yet each one represents a distinct philosophical and pragmatic approach to the organization of our lives. We are losing our cultural heritage at a rate that will seriously diminish our opportunities to achieve sustainability in the future.”

Kauai Declaration 2007
Economic Botany 61: 1-2

At the same time however, indigenous peoples will also need the support of the international community to continue their role as traditional caretakers of marginal and fragile ecosystems. Projected climate changes will exceed any previously experienced changes and traditional coping mechanisms may therefore not in themselves be sufficient to deal with impacts of climate change.
At a recent two-day symposium (April 12-13, 2007) at the Environmental Change Institute of Oxford, researchers from different disciplinary backgrounds from the humanities and social sciences to the natural and physical sciences, as well as representatives of academic, research, and non-profit organisations gathered to discuss how indigenous and other local peoples are affected by global climate change, and how they perceive and react to these changes. The focus was not only on the plight of indigenous peoples, but also on their resourcefulness and active responses to climatic variation. We discussed how to promote indigenous peoples’ voices and actions within climate change policy, research and actions. Here, we synthesize these presentations, findings and discussions of the symposium.

Looking back at climate change

People have faced climate change and adapted to it since our species evolved. The great majority of that time is obscure and can only be reconstructed through archaeological or proxy analyses, which have much to contribute to our understanding of past human adaptation to and mitigation of climate change.

From archaeology, we know that food shortage is common and food storage and sharing are central to survival during disasters and climate change. The invention of agriculture was almost certainly a major adaptation to climate change. However, much of what people have developed in response to disaster has also been lost: domesticated crops have been lost, water harvesting techniques have been lost, and dry land management has been lost. Now we must rely on archaeology to reconstruct these processes, as well as prehistoric farming techniques, plant use, and especially environmental management. What were prehistorically common seasonal foods have now become famine foods, with the danger that knowledge of them and their management will be lost forever. We know that above all, in times of disaster and climate change that people depended on diversity – diversity of crops and their varieties, of wild plants, and of environments. We know that environmental and social stress resulted in conflict and in massive death. Extinction of

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662 96.3% of human history is archaeological in the New World and much, much more in the Old World.
663 Proxy analysis: analysis of data not directly related to the primary factor (here, people and/or climate change) but possibly indicative of that factor (e.g., pollen analyses indicate climate change and human activities).
ancient cultures is more common than survival. These are fierce and powerful lessons to
contemplate as we consider what indigenous people can teach us about climate change.

Around the world, agriculture was developed at the end of the last ice age, at the
beginning of the Holocene dating back approximately 11,500 years. What do we know
about climate change during this period? There have been major changes in hydrological
events and also in extreme weather events, as well as temperature changes during the
Holocene. All indications are that conditions were wetter during the first half of the
Holocene, followed by varying degrees of desiccation. The 'Anthropocene' hypothesis
(Ruddiman 2003) proposes that human activities – largely deforestation and agriculture –
resulted in CO$_2$ increases over the last 8000y and in CH$_4$ increases over the last 5000y. If
this theory is correct, there are major implications for human-induced climate change
long predating our present focus on industrial, fossil fuel driven climate change.
Nonetheless, the climate change, driven by recent (200 y) fossil-fuel and deforestation
carbon emissions, predicted for this century$^{664}$ is far greater than anything previously
known in the Holocene or indeed in human history and prehistory. Only during the mid-
Cretaceous (~ 100 Ma when the dinosaurs roamed the planet), the late-Paleocene (~ 55
Ma when tropical plants and cold-blooded animals ranged within the Arctic Circle), and
the mid- Pliocene (~ 4 Ma) were temperatures higher – all long predating humans. So,
people have never adapted to climate change on the scale that we now face.

7.5.1 Contemporary Climate Change problems

Climate change is projected on a global scale and is a global phenomenon. However, different areas and different environments are affected very differently. People
too will face different aspects of climate change depending on where they live. We divide
the world into broad environmental categories within which there are some climate
change commonalities but also much local and regional variation.

i. Polar regions

The one region for which the IPCC II summary acknowledges Climate Change
impacts on indigenous peoples is the polar region of which they say, “Detrimental

$^{664}$ IPCC I http://www.ipcc.ch/WG1_SPM_17Apr07.pdf visited on 30/11/13 at 2: 30 PM
impacts would include those on infrastructure and traditional indigenous ways of life.” Fortunately, we need not depend on this fleeting mention for information. After polar bears, the Inuit are the best known victims of climate change. Traditional livelihoods of all peoples of the arctic are threatened by melting ice shields and permafrost. For arctic peoples, hunting and fishing strategies depend on stable ice; homes are built on ice or permanently frozen ground; and travel depends on solid ice. Temperatures in the arctic are rising disproportionally – predicted to increase by as much as 8°C in the 21st century under present conditions – affecting the livelihood strategies and knowledge of arctic peoples more quickly than elsewhere.

**ii. Alpine areas**

Alpine ecosystems around the world, too, are warming at a disproportionate rates (predicted to increase by as much as 5-6°C in the 21st century under present conditions). Glacial retreat was one of the first phenomena to draw our attention to global warming. Iconic peaks such as Kilimanjaro will have snows no more. Detailed studies track the upward movement on mountains of treeline and alpine plants. Plants at the highest elevations are being pushed off the top of mountain peaks (or more accurately stated, out competed by plants normally found at lower elevations). Palynological studies have mapped floral retreats and advances on mountains in the past but nothing compared to the speed of change today. Alpine warming and aforestation will further threaten endangered animals like Snow Leopards and mountain sheep. However, what receives very little attention is the importance of these floras and faunas to Indigenous Peoples. For example, Tibetan and Andean highlanders depend on Alpine floras for medicines, food, grazing and hunting. In the future, when trees cover the high mountains, these people will be deprived of important traditional resources central to their livelihoods. Where will Tibetans be without Tibetan medicines and Alpine meadows to graze their Yaks? Can high Andean tuber-crops and animals, such as llama and vicuña, survive the warming?

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665 www.gloria.ac.visited on 19/12/13 at 7 PM
iii. Deserts

What will happen to the deserts of the world is more difficult to predict. It is not just a matter of increasing temperatures but also changing rainfall, ocean currents, monsoon circulations, river systems, winds, and human behaviour – all difficult to model. Variability, which is notoriously difficult to predict, is also significant. Nonetheless, some very sophisticated models have been developed with startling results (for example, see BBC report on the Kalahari of southern Africa. What will happen to Kalahari dunefields in the 21st century? There are 2.5 million km² of dunes in southern Africa, deposited by wind during the Quaternary. Currently, most dunes are vegetated and used for grazing. However, predictions are for 2.5-4.3°C temperature rise this century with dune expansion and transport unequalled in the Holocene. The Kalahari Desert is expected to double in size and wind speeds will increase dramatically. Thousands of people, who inhabit this area presently, will struggle to survive, with cattle and goat farming becoming increasingly less feasible and their traditional resource base for hunting and gathering restricted or absent. Even today, indigenous groups, which have been forced to become sedentary, huddle around government drilled boreholes for water, many dependent on government handouts for survival. Without doubt, indigenous peoples of the deserts are on the frontline of global climate change.

iv. Tropical Rainforests

In the tropical rainforests of the world there is predicted to be a 2-8°C temperature rise in this century. However, even more important than temperature rise are other factors such as rainfall and seasonality, which depend on sea-surface temperatures, which are themselves difficult to model and the sea-rainforest interactions even more so. For instance, Asian, Pacific and even Amazonian tropical forests are already profoundly impacted by existing climatic variation caused by the ENSO, and these are predicted to be more frequent and of greater intensity in the future, bringing extended droughts, crop failures and even larger forest fires then are presently experienced in these regions. There is a quite high concurrence of models predicting a 20% or more overall decrease in rainfall in the Amazon. Additionally, the reduction in precipitation is larger during the...
dry season when plants and people are most stressed. These effects of climate change on the Amazon forest are exacerbated by deforestation and forest fragmentation which in turn release more carbon into the atmosphere creating yet more climate change, forming a positive. There was a preview of what is to come during the severe drought of 2005 when much of the western Amazon burned. Models suggest that in this century much of the Amazon rainforest will first be replaced by savannas and then even possibly by bare soils. Indigenous peoples themselves are very successful at preventing deforestation and managing natural rainforests. A global carbon market in avoided deforestation is likely to emerge in the next few years, which represents a huge financial opportunity for indigenous people to be paid for preserving their forest lands. However, will governments recognize tenure-rights, local priorities and the cultural contributions of indigenous peoples and will they address the challenges in implementation, such as equitable benefit sharing?

v. Islands

Climate changes common to many islands are rising sea levels and temperatures, ocean current oscillation changes (such as the ENSO), and increasingly violent storms. Other climate changes – temperature, winds, rainfall, and so forth – differ with island location. Other environmental changes are important everywhere in the world and often interact with climate change (see below), but these others factors are particularly prominent on islands. Islands are dynamic, ephemeral platforms: volcanoes build and erode; coral atolls submerge and reappear. Island endemism is extraordinarily high and the majority of extinctions on earth are on islands although they represent only 3% of land area. Thus, island biodiversity is already precarious. Diverse indigenous peoples on islands live on the margins between sea and land and between survival and failure. Natural disasters they face include island subsidence, drought, loss of fresh water; rapid anthropogenic disasters include disease, invasion, and nuclear testing; slow anthropogenic problems include deteriorating public health, social reorganization, economic globalization, and invasive species. Nonetheless, island peoples have extensive indigenous knowledge of environmental management that will be necessary for their
survival in the face of climate change: land stabilization and fisheries management, to name but two.

**vi. Temperate ecosystems**

Climate change affects temperate ecosystems quite differently depending on geography, with inundation at sea level and either more or less rainfall. However, temperatures are rising. Plant and animal distributions, ranges, phenologies, symbioses, and community structures are changing. Deterioration of ecosystem services is just one anthropocentric concern. Indigenous peoples depend on seasonal abundances of resources which are changing. They rely on predictable levels of rainfall, winter snowpack and glaciers to feed the lakes, creeks and rivers that are critical habitat for fish and other resources. On-shore and off-shore marine resources are weather dependent and yet weather is becoming increasingly unpredictable. Dry periods, which can no longer be depended upon, are needed for preserving fish, seaweed, and other resources; people are now trying to dry indoor or freeze foods. Indigenous people have stories, taboos, and knowledge about great changes in the past, but these are inadequate in the face of present climate changes. “They don’t even know what to do with this weather!” says a woman elder of the Gitga’at Nation, British Columbia. And yet the future is predicted to bring even greater climate changes.

**7.5.2 Biodiversity and Climate Change**

Indigenous peoples universally use biodiversity as a buffer against variation, change, and catastrophe. In the face of plague, if one crop fails, another will survive, with biodiversity additionally staving off attack of susceptible crops. Indigenous peoples use biodiversity over space and time, among species and varieties, in forests and agriculture, from landscape to genetic levels. Biodiversity is central to indigenous environmental management and livelihoods. Biodiversity is especially important among indigenous societies living on the margins of fragile and changing ecological, economic, and political systems. Nonetheless, biodiversity itself is threatened by climate change. Again and again, we heard this recurring theme of biodiversity and climate change.
Pre historically, biodiversity of the earth has been devastated during periods of drastic climate change. During human history, climate change, societal change and biodiversity have been closely linked. We focus on the development of agriculture as a major human advance, but setbacks – such as loss of crop biodiversity, both domesticated species and landraces – are equally salient features in human history. Today, we see many links between global warming and biodiversity. Climate change is greatest at high elevations and simultaneously biodiversity is among the highest on earth. For example in Europe, 25% of the flora is alpine on less than 3% of the land surface. In alpine areas, upward movement of plants is measurable with the highest floras predicted to be displaced off the top of mountains, off their “sky islands.” Global warming is causing the loss of alpine biodiversity. On islands, many factors interact resulting in the greatest rates of extinction on earth: island ephemerality, habitat destruction, violent storms, salinization of ground water, over-exploitation, invasive species – as well as climate change. In deserts, both people and biodiversity cling to existence in small, dynamic, non-equilibrium patches which may be decimate by climate change. Tropical rainforests of the world are havens of outstanding biodiversity, as well as indigenous cultural diversity; as tropical rainforests burn (outside of indigenous territories), this heritage of biodiversity is threatened. Changes of distributions, phenologies, and extinctions of individual species are being traced.

7.5.3 Indigenous Peoples’ Adaptation to Climate change

Indigenous peoples are not only keen observers of climate changes but are also actively trying to adapt to the changing conditions. In some instances, people can draw on already existing mechanisms for coping with short-term adverse climatic conditions such as droughts or flooding. Some of these responses may be traditionally included in their normal subsistence activities, while others may be acute responses, used only in case of critical weather conditions. In general, there appears to be a hierarchy of responses, whereby as conditions worsen additional physical and biological responses are added, and social and political relations become more important for providing resources for
basic survival. The following are some of the traditional as well as innovative responses that have been reported from various locations around the world:

Diversified resource base: a commonly employed strategy to minimize the risk due to harvest failure, traditional people often grow many different crops and varieties (e.g., with different susceptibility to droughts and floods) and supplement these by hunting, fishing and gathering wild food plants. Diversity of crops and food resources are often matched by a similar diversity in field location, some which are more prone to flooding, others more prone to drought, so that in extreme weather some fields are likely to produce harvestable crops. In areas with market access people may also supplement their subsistence base by selling surplus crops, handicrafts, wage labour, forest products, and so forth.

The Stern review, released in autumn 2006 was commissioned by the UK Treasury (rather than the environmental ministry) to assess the economic impacts of climate change as well as the cost of mitigating climate change. The Stern review was partly an attempt to counter claims that it would be too costly to try to mitigate climate change compared to any damages that might arise from climate change. Main findings of the Stern review were that mitigation costs are relatively moderate, while climate change related losses are likely to be much larger than previously thought. Although criticised by many economists for its underlying assumptions (especially about discount rates) and methods, it has informed policy discussions in the UK and elsewhere, including climate-sceptic countries like Australia.

During the first months of 2007, two of the working groups under IPCC have released policy maker summaries of new assessment reports, summarising current knowledge about climate change. In February 2007 IPCC working group I released a summary for policy makers of its report on the Physical Science Basis. This report contained stronger scientific evidence of observed global warming and its human causes and a new set of projections about how climate might change into the future. In April 2007, this was followed by the policy maker summary of the assessment of IPCC working group II on “Impacts, Adaptation and Vulnerability”. As in the first report, more and stronger evidence was presented for the impacts of climate change on natural systems
as well as on human activities in many parts of the world. Impacts are predicted to be especially large for poor countries as well as for many of the ecosystems that indigenous peoples inhabit (see above). The report also notes that some human adaptation is already taking place, but that adaptation efforts need to be increased. In May 2007, IPCC working group III released “Mitigation of Climate Change” that holds realistic hope for stabilization and reversal of climate change. Emphasis is, however, on large-scale projects and initiatives such as infrastructure projects and government responses to acute crises, while the adaptive responses and mitigations of indigenous and other local peoples receive far less attention.

In addition to these reports, several national, regional and international regulatory frameworks are currently being considered and negotiated. Notably, the ending of the current Kyoto commitment period in 2012 has sparked debates about the form and content of any follow-up agreement. While the Kyoto agreement (and similar regional agreements such as the European Trading Scheme) started a flourishing trade in carbon credits, only modest emission reductions have been achieved. It is therefore being debated whether carbon-emission permits for the future should be allocated in different ways (e.g., on the basis of population, or by auction). Another point of debate is the efficiency of carbon off-set projects for reforestation or lower carbon fuels and the possible inclusion of standing forests and prevented deforestation (which are currently not considered off-sets under Kyoto). Others argue that the focus should shift completely away from carbon credits to other mechanisms of curbing emissions such as taxes and technology transfer. This could partly be achieved by the development and transfer of cleaner technologies, but there remain questions such as how to pay for technology development and transfer. Similarly, there are still heated debates on costs of adaptation, which will be very unevenly distributed around the world with poor nations predicted to bear the brunt of climate change related damages and costs. Indigenous Peoples and their plight are seldom mentioned in these discussions.

In addition to global agreements and negotiations, there are also recent regional developments. In March 2007, the EU agreed on new climate commitments including 20% cuts in greenhouse gas emissions by 2020 (30% if other countries participate).
Similarly, many nation states such as the UK are currently drafting new national climate change policies and legislation. In addition to commitments by nation states and international bodies there are also growing commitments from non-nation state actors, such as corporations, states, NGOs and individuals. How much these voluntary commitments will be able to contribute to the emission reductions remains to be seen.

From perspectives on Indigenous Peoples and Climate Change, it becomes evident that indigenous knowledge and perceptions must be incorporated into the Climate Change forum. Indigenous Peoples offer local observations and techniques for adapting to and mitigating climate change. Indigenous Peoples must exercise self-determination and be empowered to deal with climate change which threatens their traditional livelihoods, indeed their very existence. Integration and feedback loops between climate change science and indigenous peoples must be established and employed. Both parties can gain knowledge from the other and support each other in action.

Around the world, Indigenous People have developed sustainable carbon neutral and carbon negative livelihoods from which it would behove us to learn and to emulate. At the same time Indigenous People around the world are on the front-line of climate change, experiencing the brunt: temperature rises, sea-level rises, both droughts and floods, ice sheet and snow melt, glacial retreat, increasingly violent storms and unpredictable weather, and more. Their voices must be heard and their insights abided. A Tibetan villager warns, “If the snow disappears [from our sacred mountains], people will disappear from the earth.”