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UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

**AD HOC WORKING GROUP ON FURTHER COMMITMENTS
FOR ANNEX I PARTIES UNDER THE KYOTO PROTOCOL**

Third session

Bonn, 14–18 May 2007

Item 3 of the provisional agenda

**Analysis of mitigation potentials and ranges
of emission reduction objectives of Annex I Parties**

Information and views on the mitigation potential at the disposal of Annex I Parties

Submissions from Parties

Addendum

1. In addition to the eight submissions contained in document FCCC/KP/AWG/2007/MISC.1, one further submission has been received.
2. In accordance with the procedure for miscellaneous documents, this submission is attached and reproduced* in the language in which it was received and without formal editing.

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SUBMISSION FROM ICELAND

27 April 2007

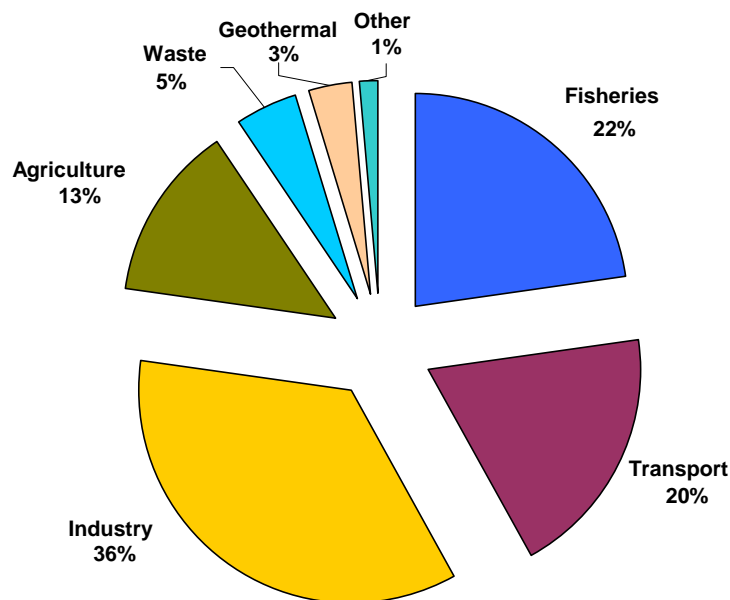
Subject: Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol: Information and views from Parties on the mitigation potential, effectiveness, efficiency, costs and benefits of current and future policies, measures and technologies at the disposal of Annex I Parties, appropriate in different national circumstances, taking into account their environmental, economic and social consequences, their sectoral dimensions, and the international context in which they are deployed.

Iceland, on 23 February 2007, sent in a note to the Secretariat announcing the adoption of a new Climate Change Strategy for Iceland, and indicating its intention to present key elements of the Strategy, including sectoral mitigation potential and the international context of the Strategy, in the context of the AWG. Following is a briefing on these issues.

1. Iceland's emission profile

Iceland has in many ways a unique situation with regard to greenhouse gas emissions among developed countries. The single most unusual feature of Iceland's emission profile is that emissions from stationary energy sources are extremely low (some 4% of total emissions), despite the fact that Iceland uses more energy per capita than any country in the world, for domestic uses as well as powering export industries, mainly aluminium and ferro-silicon production. Nearly all stationary energy, and over 70% of total energy production, comes from renewable sources, hydro and geothermal. The biggest four sources of emissions are: industrial processes (25%), transport (20%), the fishing fleet (19%), and agriculture (13%).

Table 1. Greenhouse gas emissions 2005, by sectors



Iceland's greenhouse gas emissions rose by 11% from 1990 to 2004. Carbon sequestration, an important part in Iceland's climate policy, removed carbon dioxide from the atmosphere equal to 7% of emissions in 2004, so that net emissions have increased by 4% from 1990 to 2004. Iceland's emission limitation according to the Kyoto Protocol is 110. A big part of the emissions in 2004 fall under the definitions of

decision 14/CP.7 on the impact of single projects on emissions. These emissions can be excluded as part of the national totals to the extent that they exceed the national limitation and do not exceed 1.6 million tons CO₂ per year on average in the period 2008-2012. Iceland expects to be within its Kyoto emission limitations despite a growth in energy-intensive industry, using the provisions of Decision 14/CP.7.

2. Government 2007 Climate Change Strategy

The Icelandic Government adopted a new Climate Change Strategy in February 2007. The strategy sets out a long-term aspirational goal of reducing greenhouse gas emissions, principles and priority actions for tackling climate change, guidelines for research and public education, and indicators of progress. The five “pillars” of the strategy are: 1) Fulfilling international obligations, 2) Limiting greenhouse gas emissions, with particular emphasis on reducing emissions from fossil fuel use from mobile sources, 3) Increasing carbon sequestration, 4) Increasing research and development on climate-friendly technology and 5) Adapting to climate change.

The strategy outlines action to be taken to lower emissions in six sectors, as well as action to increase carbon sequestration. A big emphasis is on sector performance, i.e. on each sector becoming as carbon-efficient and climate-friendly as possible.

The strategy contains the long-term goal of cutting net emissions of greenhouse gases in Iceland by 50-75% by 2050. This is seen as an ambitious goal, especially given the fact that stationary energy production, seen by many countries as a priority sector for achieving emission reductions, is almost emission-free in Iceland. The goal will not be reached without concerted action in every sector, reducing emission intensity and actively employing new climate-friendly technology. Also, increased carbon sequestration is seen as a possible way to help reach the goal, as Iceland has vast potential for revegetation and afforestation. One important reason for setting a long-term goal of big cuts in emissions is to send a signal to business and the general public to engage actively in finding effective ways to reduce greenhouse gas emissions.

3. Mitigation potential in key sectors

The Climate Change Strategy puts emphasis on sector performance. Individual countries have different emission profiles depending on their role and specialization in the global economy. It is difficult to compare emission intensity and reduction potentials between countries without looking at their emission profiles. Sound analysis of sector performance and sectoral mitigation potentials is a crucial factor in the calculation and allocation of fair and equitable numerical targets for parties in any future commitments. This will also help countries domestically by focusing their attention on poorly performing sectors, where emission cuts are likely to be easiest to achieve and most cost-effective. The new strategy contains rough estimates of carbon-efficiency and mitigation potential of seven key sectors, including carbon sequestration:

- With **energy production (4% of total emissions)**, mitigation potential is *extremely low*, as almost all stationary energy comes from renewable energy sources. Indeed, an expansion in energy production from those sources is seen as beneficial from a climate perspective, whether designed for domestic consumption or powering export industries. It has been estimated that if the stationary energy produced in Iceland came from fossil fuels, emissions could be in the range of 10-12 million tons of CO₂, instead of some 90 thousand tons. Experiments are currently under way in sequestering CO₂ underground in geothermal fields in Iceland.
- With regard to **industrial processes (25%)**, big gains have been made since 1990, as emissions of greenhouse gases per ton of produced aluminium have been reduced by more than two-thirds,

and are currently only about 35% of the global average, counting both energy- and process-related emissions. The potential for further gains is seen as *low*, as the aluminium smelting industry in Iceland is possibly the most carbon-efficient in the world. New technologies being studied, like carbon-free anodes in aluminium production, could significantly reduce emissions in the future, but are not feasible at present.

- With regard to **transport (20%)** and **industrial fossil fuel use (11%)**, largely from building industry and heavy machinery), the potential for mitigation is seen as *moderate* in the short term, and *significant* in the long term. Emissions from transport have increased in recent years, despite efforts by the government to introduce economic incentives for small diesel cars and low- and zero-emission cars. The availability of such cars has been limited. It is seen that further economic incentives for climate-friendly vehicles and transport options could help turn the negative trend around in a relatively short (a few years) time, and that emissions could decline substantially at a later stage, when more low-emission vehicles become readily available, so customers can take real advantage of these incentives. Iceland has been active in pilot projects involving hydrogen and other alternative fuels – this is seen as part of an international effort to test and develop new climate-friendly technology, but it will hardly have noticeable results in reducing emissions in the nearest future. The long-term aim of such policies is to use Iceland's renewable energy to produce climate-friendly fuels or electricity for mobile energy users.
- The **fishing fleet (19%)** is a major source of emissions, as Iceland is the 12th biggest fishing nation in the world, exporting the vast majority of its catch. Mitigation potential is seen as *probably low* in the short-term, compared to that of other developed countries. This is due inter alia to the fact that the fishing industry is not subsidized, unlike that in many neighbouring countries, so that there are bigger incentives for fuel economy in fishing vessels. Given the high share of this source in Iceland's emission profile, it is seen that Iceland has a duty to be at the forefront in research and development in low-emissions shipping. The Icelandic government has supported research in fields such as hydrogen fuelling for ships, fuel-efficient fishing gear and fuel-saving information technology. Related emissions in fishmeal processing need to be addressed.
- Mitigation potentials in **agriculture (13%)**, consisting mainly of emissions of methane and nitrous oxide from enteric fermentation, manure and fertilizing, have not been adequately assessed, although the experience of other countries indicates that these are *limited*. Emissions have declined in recent years due to reduction in agricultural production.
- Mitigation potentials in **waste (5%)** and **other sectors** are seen as *moderate*. Due to the small proportion of their share in the emission profile, measures in this regard (such as increased tapping of methane from landfills, already under way) will have limited effect on total emissions.
- Prospects for **carbon sequestration** in Iceland by afforestation and revegetation are seen as *very high*, and feature prominently in past and present climate strategies. Iceland has suffered from severe soil erosion from the time of its settlement, so a big part of the country is now barren or degraded. There is significant potential for reclaiming the soil and vegetation cover in eroded lands, which is considered to be a win-win strategy, as soil reclamation has long been a priority in environmental policy. Currently, carbon sequestration offsets about 7% of emissions in Iceland. This could be increased much, but that option needs to be compared to emission reduction option.

Iceland considers itself to have the most carbon-efficient stationary energy sector among developed countries, and possibly also the most carbon-efficient heavy-industry sector, especially when looking at

industrial processes and energy combined. Transport is probably the least carbon-efficient sector in Iceland, and hence a priority for policies to reduce emissions.

4. International context of Climate Strategy

Iceland is responsible for only about 0.01% of global greenhouse gas emissions, reflecting its small population of only about 300,000. Iceland's commitment to be at the forefront in tackling climate change rests on two assumptions. First, Iceland believes it has a duty as a developed economy to show leadership in climate mitigation efforts, regardless of its low share of total global emissions. Second, Iceland is advanced in the field of some climate-friendly technologies, notably geothermal energy utilization, and believes it can assist in limiting emissions in other countries by export of technology and know-how. Indeed, the new climate strategy claims that the positive effect of this could be far greater than any domestic measures. Climate change is a global problem, and Iceland's climate strategy has to be undertaken and evaluated in a global context.

The effect of globalization on any system of emission control has to be taken into effect. Increased globalization means that polluting industries can move between countries with greater ease. Such mobility of companies and emission sources is probably easy to handle for most parties, as each unit is usually small relative to the total size of the economy. For a small economy like Iceland, this can become a significant issue. A decision of just one company to leave Iceland could mean big emission reductions without any efforts to decarbonize the economy or employ climate-friendly policies. Likewise, a single energy-intensive factory being built in Iceland could cause a breach of a simple emission-control target, even if the factory employed renewable energy and the most climate-friendly processing technology available.

This specific problem of small economies is addressed in Decision 14/CP.7 on the impact of single projects on emissions in the commitment period. Any future agreement should acknowledge this issue, and contain adequate provisions to address it. Burden-sharing among parties should be based on sound analysis of the carbon-intensity and mitigation potential of key sectors. This will help ensure fairness and help bring pressure on industries and companies that have the biggest and cheapest possibilities for emission reduction.

5. Concluding remarks

Iceland believes the following should, inter alia, be considered in the further work of the AWG:

- Means must be found to ensure **truly global participation** in mitigating climate change, taking into account the ultimate objective of the Convention, the principle of common but differentiated responsibilities, the urgent need for combatting poverty, and the potential to identify and implement win-win strategies and policies. This would mean a continued demand for developed countries to lead the way, a commitment by rapidly developing countries to become more actively engaged, and a stepped-up effort to assist all developing countries in employing climate-friendly technologies.
- **Sectoral analysis** has a key role to play in the calculation and allocation of numerical targets for individual countries, for the sake of fairness and in order to ensure that pressure will be brought on relevant industries in each country to become more efficient. Voluntary or mandatory sectoral targets could complement national targets in future commitments, but short of such efforts a "sectoral approach" can be employed as an analytical tool for increasing transparency and assisting in calculating national targets. An allocation of targets not based on a sound analysis and maximum transparency risks not only becoming politically weak, but also failing to bring

sustained pressure on poorly performing sectors and industries in each country. Work by the UNFCCC Secretariat, other international organizations and/or individual parties on carbon-efficiency benchmarks and criteria for individual sectors and industries could be useful.

- The special **circumstances of small economies** must be addressed in an adequate way in any future regime, so that they will neither be unduly punished or unfairly rewarded by the commissioning or decommissioning of single projects. Small economies should face the same criteria and pressures as bigger parties to decarbonize their economies and individual sectors.
- Any future commitments must actively encourage **technology transfer**, and increased research and development of climate-friendly technology.

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