

**Panel discussion**  
**Sustainable development in the construction and housing,  
energy and transport sectors**

**By:**  
**Professor Christen Sørensen,**  
**University of Southern Denmark,**  
**President of the Transport Commission in Greenland**

First some general remarks.

Is global heating from greenhouse gases and other environmental effects on nature a serious problem?

UN by IPCC obvious thinks so. Others disagree. My own conclusion is as follows. As a citizen and especially if I had a political chair, I would not dare ignore the recommendations from IPCC based as they are on the research of an impressive numbers of scientists though some errors have been detected in their report. If the observations in the IPCC report are basically correct, one has to imagine what will happen if no actions are taken to reduce or stop emissions and pollutions. On behalf of my children and grandchildren etc. I would avoid the risk in not taking precautionary actions.

As an economist I will not pretend to have knowledge of technical possibilities. Accordingly my considerations are focused on topics of which economists ought to have knowledge. An obvious such topic is incentives. Which incentives should we introduce or strengthen so firms and people act in a desirable way, if emissions and other kinds of pollutions are to be reduced or stopped?

For an economist prices are the most obvious instrument through which to establish incentives. However there are market failures due to e.g. externalities, lack of transparencies and lack of competition. The most serious market failure in relation to emission and pollution is in my opinion externalities. Therefore we have to supplement the price system with political determined regulations. UN's COP15 in Copenhagen in December 2009 was an attempt to carry on with such regulations in a global context. For various reasons the summit in Copenhagen did not become the big breakthrough as many had hoped for. Even though it was not a decisive reason for the lack of success in Copenhagen I will comment on the incentive system which was intended to reduce the emission of greenhouse gases. I have two reasons for focusing on this topic. My experience from Danish examples indicates to me, that it is a challenging task to construct a well-designed system of incentives in areas where the price system does not function or is not allowed to function due to e.g. equality considerations.<sup>1</sup> First I think that the national quota system has a clear deficiency. Second this deficiency is e.g. most relevant in a Greenlandic context in relation to establishing aluminium production in Greenland.

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<sup>1</sup> In Denmark public money for universities, upper secondary schools etc. to educational purposes follows the numbers of exams that their students pass. It's incredible that presumably intelligent people in the government and the parliament can argue for a system which gives incentives to the educational institutions to let the students pass and at the same time claim that they try to establish the world's best educational system. As an economist I cannot believe that such a system with built-in moral hazard as an important feature will do that – on the contrary it will definitely reduce the quality.

Production of aluminium is very energy-intensive. Energy, based on hydropower, will be the energy source in Greenland for the planned aluminium-smelter in Maniitsoq. In this way there will be no emission of CO<sub>2</sub> from the supply of energy to the aluminium-smelter in Maniitsoq. Pollution connected with the processing of aluminium at the smelter will of course not be avoided in Maniitsoq. Both compared with production of aluminium based on one or another source of fossil fuel, the emission of CO<sub>2</sub> will be markedly lower in the Maniitsoq-plant. Another question is of course: should we allow aluminium production at all? But it is quite another question which I shall not try to answer in this panel discussion.

Under the proposed quota system a paradoxical consequence from a global perspective can be that aluminium production on CO<sub>2</sub> free energy in Greenland will be substituted by aluminium production based on fossil fuel in another country, if Greenland is not awarded a sufficient CO<sub>2</sub> quota. Such a deficiency has to be removed from the incentive system. I will suggest that the national quota system has to be elaborated in the following way: 1) there must be imposed maximum limits on emissions from very energy-intensive productions as aluminium production. If these limits are superseded, ordinary CO<sub>2</sub> quota has to be acquired, 2) the CO<sub>2</sub> emission corresponding to the maximum limit as a result of aluminium production on a world level is subtracted from the world limit on CO<sub>2</sub> emission, which is distributed among countries, 3) other non-national oriented activities as air transport and shipping should be treated as aluminium production in relation to CO<sub>2</sub> emission.

Especially for small economies – with few people – like Greenland it is important with this more elaborated CO<sub>2</sub> system, as bad consequences cannot be expected to be absorbed in an even distribution of a lot of advantages and disadvantages.

I think it is very important that “punishment” systems are considered fair, if they should be respected, adhered to and the punishment also effected.

If will finish my considerations with a few more specific considerations. Greenland is a huge country, 2.2 mill. km<sup>2</sup> inhabited by only about 56.000 persons. From north to south the distance is about 2.650 km. – as from Skagen to Gibraltar, and from west to east the distance is about 700 km. The population is furthermore dispersed on e.g. 18 towns and about 60 settlements. On these premises – and taking into account that energy-intensive fishing is a principal industry in Greenland – it is clear that energy consumption per capita or per unit of GDP is very high. As petrol prices are very low in Greenland – among the lowest in the world in countries importing petrol – one should not be surprised at the energy intensive situation in Greenland.

Taxes on energy consumption and by this higher prices of petrol therefore also seem to be a very obvious way to reduce energy consumption. However two main obstacles to this policy are very evident. Firstly: much higher energy prices will hurt fisheries, which is still the principal industry in Greenland, and as long as there are no clear job alternatives for unskilled labour it is for obvious reasons politically very difficult to pursue such a policy. Secondly: much higher energy prices will also reduce the living standard especially in the many small settlements in Greenland.

Other solutions have accordingly to be found. Energy production based on hydro power has been an intensive sought politically strategy. Already there are now 4 hydro power stations in Greenland supplying electricity to the capital Nuuk, to the second largest town Sisimiut, to two towns in the southern part of Greenland (Narsaq and Qaqortoq) and to Tasiilaq on the east coast. Furthermore

Ilulissat will from 2012 have its electricity consumption supplied from hydro power. Even though I have no technical expertise I think Greenland has very good possibilities of being one of the countries in the world which most thoroughly substitute cars using petrol with cars using electricity, if such cars can be adapted to the Greenlandic conditions. Road systems are all local in Greenland, confined to the single city. As such the limited reach for electricity driven cars due to the need to recharge batteries ought to give no problems. Furthermore batteries can be recharged at intervals where the consumption of hydro power generated energy to other purposes is low – with very low cost for the society.

Even though there are great advantages to be reaped by building more hydro power driven electricity plants and changing to electricity driven cars also a more long term development plan has to be pursued. Two very important elements in such a plan are: 1) a much higher education level and 2) new industries. Aluminium production and mining of different minerals are in my opinion the most important avenue to create new and well paid jobs in Greenland.

One of our tasks in the transport commission is also to include emission of e.g. CO<sub>2</sub> in our considerations. We will of course try to fulfil this task even though we recognise, that air transport will still be a very important transport mode in Greenland.