



NEWSLETTER

October
2007

Editorial

The problem of climate change due to our energy consumption is currently a focal point on the international political agenda. Although this problem has now been widely accepted throughout our society, this has not always been the case. The collection of scientific evidence for climate change and the communication of this evidence to the general public have played an important role in this. YES-DC has recently organized two activities about these aspects. In the article describing the IPCC Fourth Assessment Report discussion meeting, you can read about the overwhelming amount of scientific results for the problem of climate change. In addition, you can read more about the potential measures for mitigation. How to actively involve the general public in these measures was discussed during the YES-DC activity about the communication of the climate change problem. A short report (in Dutch) can be found in this Newsletter.

YES-DC has a substantial number of members working in foreign countries. In this Newsletter, you can read about the work of one of these members, Jan Cloin. He is active in the field of biofuels at a very exotic location!

Kind regards,
Hans van Kuijk

Chairman's foreword

After the summer break we have in September organized an activity about marketing and climate with presentations of Sible Schöne, 'Klimaatbureau' and content-wise coordinator of the HIER campaign, Peter van der Helm of Greenpeace's advertising agency and Prof. mr.dr.ir. Sicco Santema (TU Delft). I found it very interesting to experience a combined activity, in which the members of the International Advertising Association had been invited as well. Where we, the members from YES-DC learned more about how communication of such a problem works, the IAA members had many eye-openers with respect to climate and energy.

There will be some more interesting activities later this year, being one about the high oil-price and its consequences for this month and one about Sustainable Energy Sources in the Future for November. Also, we intend to send you all a questionnaire, in order to find out how you experience YES-DC, what you would like to see different and whether you have any good suggestions for activities.

Finally, I regret to announce the leaving of our member of the board, Bart Dehue. Due to reasons of capacity, he will not be able to fulfill his role as board member. Nevertheless, I am confident that the six remaining board members will be able to fulfill the required tasks the YES-DC board will need to fulfill.

I am looking forward to meeting you at our upcoming activity.

Kind regards,
Haïke van de Vegte

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Colophon

The Newsletter is distributed by YES-DC (Young energy Specialists and Development Cooperation) to their members 4 times a year. Subscription to the newsletter is free of charge and can also be downloaded from the YES-DC website. For any further questions or suggestions feel free to contact us.

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Frans Berkhout:
The high impact of the third assessment report is a result from more and better studies

Kornelis Blok:
More progress in determining the potential for policy measures in the IPCC reports is required

Fourth Assessment Report of the IPCC:

Realization, contents and consequences

Developing the IPCC reports involves lots of meetings in exotic places, heated debates with hundreds of top-scientists and strong political structures to keep to. Prof. dr. Frans Berkhout (Professor of Innovation and Sustainability at the University of Amsterdam) and Prof. dr. Kornelis Blok (Professor of Science, Technology and Environment at Utrecht University), both authors of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), let us in on the process of writing the IPCC report and presented some of the striking results.

Author: Esther Keijser

Frans Berkhout: Impact studies

Prof. Berkhout first explained the background of the IPCC reports. The procedure to publish IPCC reports was established in 1988 by UNEP (United Nations Environment Programme) and WMO (World Meteorological Organization). The reports can be seen as a compilation of the current state of knowledge on climate change and appear every five years.

After having explained the procedure for the construction of the reports, Frans Berkhout highlighted the conclusions of the IPCC report. This report could draw from more and better studies, more understanding of impacts of climate change and more results for impacts in developing countries, as compared to the last one. For example, in 90 % of global studies, observed changes to biological or physical systems are consistent with the assumption of global warming. Furthermore, the report contains some more unambiguous conclusions: for example, all glaciers are retreating, while 1/6 of the world population is served by glaciers and snowmelt-fed rivers. And with a 2-3 °C warming 20 to 30 % of the assessed species will be at risk and substantial changes in structure and function in terrestrial and marine ecosystems will be likely.

Due to the quality of the studies and the clear conclusions, this last IPCC report

had more impact than the previous reports. The detailed studies give abundant evidence for the occurrence of global warming and illustrate the need to undertake rapid action.

Kornelis Blok: Mitigation

Kornelis Blok discussed what can be done about climate change. He was author in the working group that dealt with mitigation. Mitigation was assessed according to two approaches: the socio-economic analyses (bottom-up) and integrated assessment analyses (top-down). The first approach emphasizes specific technologies and regulation, while the second gives among other things a good description of the relation between the energy system and the economy. The conclusion, in short, is that there is no best measurement. It depends on specific characteristics of for example a sector which measurement is best. What is still needed though, according to Kornelis Blok, is more progress in determining the potential for policy measures and more evaluations of policies.

In 5 years the next IPCC report is expected to come out. Both authors don't expect that report to be the same as the current one. With the increasing quality and number of studies in the field of climate change, they think it is more likely that the report will have a different structure. ●

Marketing en communicatie van klimaat en energie:

De Noordpool is al weg!

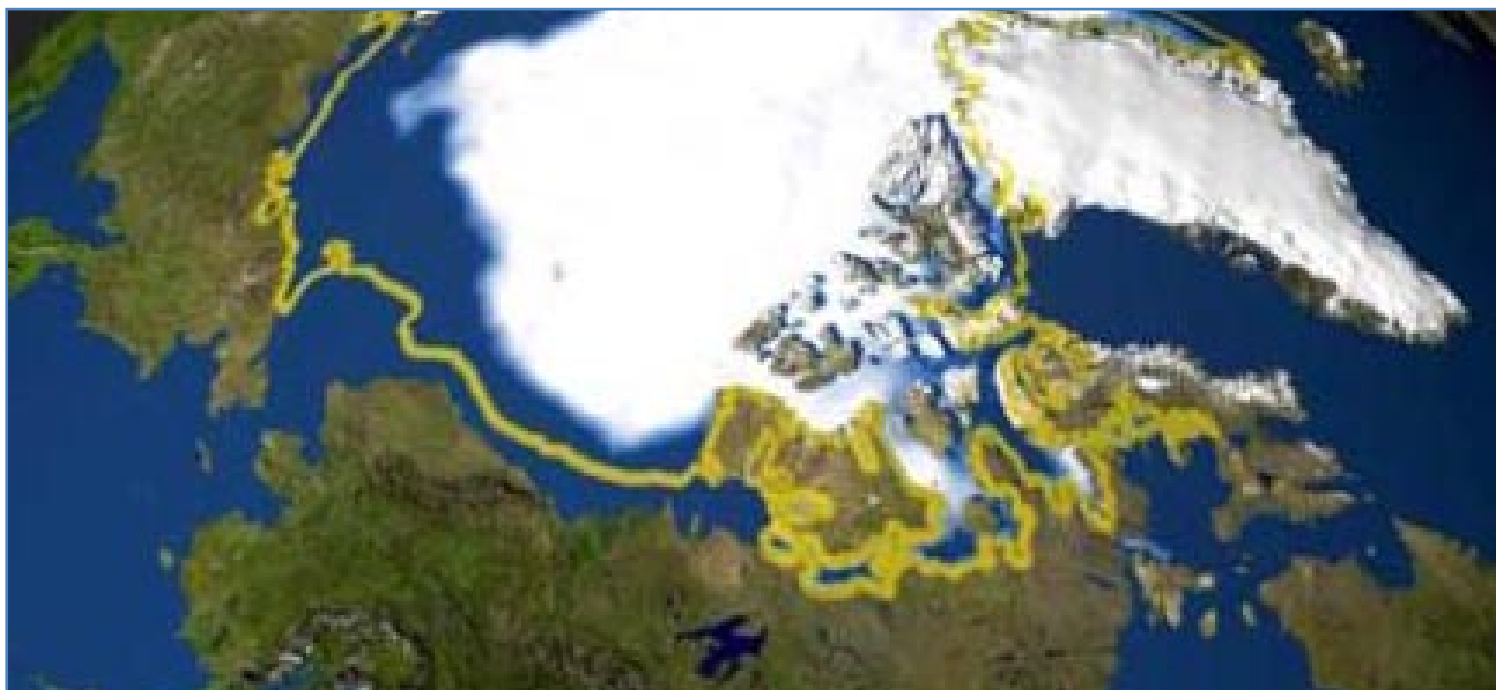
De Noordpool is al weg! Met deze woorden werd de zaal, gevuld met IAA leden en Yes-DC leden, in het statige Movenpick Hotel wakkergeschud. De samenwerking tussen de IAA en YES-DC kwam tot stand om de kennis op het gebied van marketingcommunicatie en het milieu te combineren in deze thema-avond. Sprekers waren Sible Schöne van het Klimaatbureau, Peter van den Helm van het reclamebureau PH/LAW en professor Sicco Santema, deeltijdhoogleraar "Milieu en Marketing aan de TU Delft

Sible Schone van het Klimaatbureau en vanaf het begin betrokken bij het project. Hier trapte de avond af om een inleiding te geven in de problematiek. Met veel

veel bereikt (in twee jaar), maar om bijvoorbeeld jongeren in actie over te zetten is erg lastig.

Tweede spreker was Peter van der Helm van het reclamebureau van Greenpeace (PH/LAW). Hij gaf meer inzicht in de campagne van Greenpeace om spaarlampen te promoten. Een mooi kijkje achter de schermen hoe je een maatschappelijk verantwoord product toch op een 'populaire' manier kan promoten.

Als laatste gaf professor Sikkema (deeltijd hoogleraar TU Delft) meer inzicht in de relatie tussen maatschappelijk verantwoord ondernemen en macro-economische regels en theorieën. Volgens professor Sikkema botsen de bestaande



'De CO₂-uitstoot van de laatste jaren wissen we niet meer weg.'

overzichtelijke informatie bracht hij het bewustzijn van de bezoekers naar boven. Sible gaf onder andere aan dat mede dankzij Al Gore de milieuproblematiek pas echt op de agenda is gekomen. In 2005 spraken we nog over abstracte problematiek en zagen we veel onzichtbare initiatieven en dankzij een goede film van een politicus is opeens alles mogelijk en minder abstract. Naast de Noordpool zijn we ook al 80 tot 90% van ons koraalrif kwijt. De CO₂-uitstoot van de laatste jaren wissen we niet meer weg. De ernst van het verhaal is volgens Dhr. Schone daarom nog niet volledig duidelijk. Er is al

theorieën (onder andere die van Porter) met de altruïstische gedachte die achter milieuverantwoorde initiatieven hangen. Om 'milieu verantwoord' te produceren zal je toch altijd naar de kosten blijven kijken. Een lastige balans die niet altijd makkelijk te bepalen is. Hij had uitgerekend dat van Zeist naar Delft ongeveer 16 kilo CO₂-uitstoot kostte. Maar wat zegt dit nu? Hoe kan ik dit bevatten? Is dit veel?

Al met al een zeer geslaagde avond georganiseerd door twee verenigingen met zeer verschillende uitgangspunten. ●

Author: Arthur Herpel
Figure: Google maps

YES-DC member Jan de Cloin works as an Energy adviser in a very special location: the Pacific Island region. In his contribution to this newsletter, Jan explains how he got fascinated with the idea of applying biofuels for transportation. Furthermore, he shows the opportunities to speed up the use of this clean and green fuel that is abundant on the Pacific islands.

It has already been four years now, since I started to work as a JPO, seconded by UN-Department of Economic and Social Affairs (DESA) to the Pacific Islands Applied Geoscience Commission (SOPAC) in the Fiji Islands. As an electrical engineer with development sciences background (TU/e) I had experience in mainly PV for remote electrification in Southern Africa, some work with the CDM and the green electricity sector in The Netherlands. After arrival in a very isolated but otherwise pleasant environment, I was given a number of projects to take care of, including the installation of a small wind turbine on our office compound and the biofuels portfolio. After reading about experiences elsewhere in the region, the SOPAC files and online sources, soon I became fascinated with

the idea that regular internal combustion engines can run on various sorts of liquid biofuels and also started to try it in my own car.

Especially running a diesel engine on coconut oil appeared to be a viable alternative to regular diesel, so I started out buying coconut oil in the shops and blending a couple of bottles with a full tank. Soon I ordered a whole drum of much cheaper raw copra oil from the local mill and had quite good experiences, although I had to clean out my tank a few times when coconut debris blocked my filters. I also added a heat exchanger, using the heat of the engine coolant to heat up the fuel blend before injection, so as to increase its viscosity; this gave even better results, especially at blends higher

than 50%. The specific chemical properties of coconut oil allow use up to 100% in Indirect Injection diesel engines (with a pre-combustion chamber). In Direct Injection engines, coconut oil can only be used as a 'pure plant oil' fuel when the engine is fully loaded (i.e. in a stationary engine for power generation this can be the case). In all other cases, the oil needs to be esterified into biodiesel, just like most other vegetable oils.

Biofuels in Pacific Island Countries

In recent years, there has been an increasing interest in biofuels replacing imports of fossil fuel in the Pacific region, home to about 3.5 million people (Figure 1). While the EU and Japan have had mostly environmental reasons for biofuel promotion, the US and Brazil pursuing energy security/independence with their corn and sugar cane respectively, Pacific Island countries have a limited resource that could be used for biofuels, based on their colonial heritage of sugar cane, coconut and palm plantations. Even though environmental factors are not the main driving force, larger cities are air-polluted and would be served by cleaner fuels. Nevertheless, the call for the use of locally produced biofuels in the Pacific has been based mainly on the desire to reduce dependency on imported fossil fuels.

However, a recent SOPAC publication about the effect of biofuel import substitution on the balance of payments of a Pacific island country (Woodruff, 2006) found the impact biofuels can have is

“Coconut Oil as a Biofuel in Pacific Island Countries”

Working as an Energy adviser in the Pacific Island region

Author: Jan Cloin

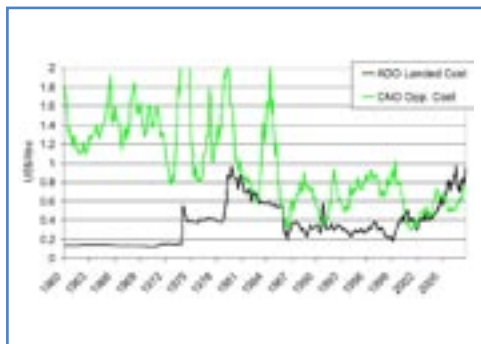


rather limited. As coconut oil is usually a significant export product, using it to replace imports will also cause exports to go down. In addition, if duties and excises are waived so as to promote the use of biofuels (biofuels are usually not immediately economically competitive), the impact on Government finances might even be negative.

It is very often argued that the size of the Pacific islands is not sufficient to produce these biofuels in volumes large enough to achieve economies of scale. Other arguments are that diesel substitution by biodiesel (esterified vegetable oil) requires the import of high quantities of methanol, while many organically certified coconut oil products could target much higher value added markets than are possible with biofuels. This leads to the question that was already posed many years ago, whether biofuels are an interesting pathway for developing countries, or a dead end (Zieroth, 1985). I think it can be both. Let's have a look at some ways where biofuels do provide a good solution to local energy problems in the Pacific.

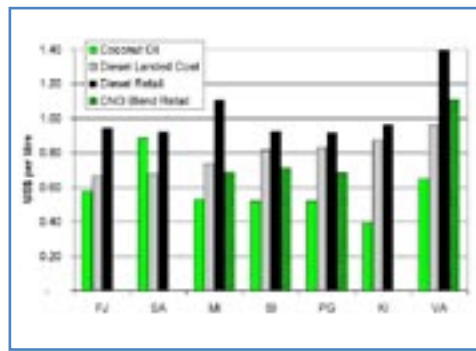
The economic case for coconut oil as a biofuel

As you all know, the oil world market price has been very volatile in the last years. Simultaneously, coconut oil as an export commodity has been at least as volatile on the world market, affected by periods of cyclones (high prices) and overproduction (low prices). The significant price reduction after 1999 has led to disarray of the copra sector in many Pacific island countries (Figure 2).



The graph in Figure 2 shows the prices of landed diesel fuel (ADO) in Samoa and the opportunity costs for coconut oil (CNO) exported to world markets, as an example, however price levels for diesel differ significantly throughout the region as a result of different supply costs and tax regimes. Also the opportunity costs of

coconut oil differ through different supply chain arrangements and economies of scale (Figure 3).



It is no surprise that in Vanuatu (VT), the use of coconut oil has taken off in both transportation and power generation, given the high price differences that exist there. Hundreds of minibuses and cars are running on a 80% highly filtered coconut oil – 20% kerosene mix. Vanuatu's power utility UNELCO also has a 4 MW MAN generator running on a 20% blend in the capital and is preparing to use biodiesel for generators in outer islands. In Papua New Guinea, the province of New Ireland has been operating many vehicles on coconut oil during a period of civil unrest. In the Marshall Islands, a 50-50 coconut oil blend is being retailed but a number of cars have been running for years on 100% coconut oil. A SOPAC investigation of an engine run for three years on coconut oil revealed no adverse effects attributable to the use of the locally produced fuel. New Caledonia and Fiji have stand-alone generators for power generation that run on pure coconut oil produced by the local villagers on outer islands. GEF-World Bank, as part of its Energy Financing project in the region, is preparing the conversion of a large number of outer island generators to be run on 100% coconut oil, with an automatic switch back to diesel during start-up and shut-down, or in case of low loads. (Figure 4.)

Potential for biofuels in the Pacific renewable energy mix

The potential for the countries in the Pacific region to supply biofuels has been estimated at about 30% of demand for transport fuels (SOPAC 2005), assuming major replanting and restructuring of the copra and sugar industries. Coincidentally, this is in line with an IEA estimate of 30% biofuel potential worldwide by 2030 (IEA, 2006). It will however depend on the world market developments whether

this potential can be met for the Pacific. Increasing demand for biofuel feedstock (with the appropriate quality labels as referred to in an earlier issue of this newsletter by Martijn Vis) leads to increasing prices of vegetable oils which in turn tends to a decrease in the competitiveness for use of these oils as a fuel in the Pacific islands. Even though increased local prices for agricultural produce will be good for farmers, it might hinder the local use of biofuels in Pacific island countries. The associated increase in food prices will directly affect the (urban) poor.

Biofuels can and will be part of a sustainable solution to the Pacific island energy challenges, but is not a viable alternative to replace all petroleum products. Other solutions like more efficient vehicles, wind, solar and perhaps in the medium term ocean energy will also have to play a major role as well. SOPAC supports its 14 member countries by assisting in the establishment of quality standards, for biodiesel, ethanol blending and a pure plant oil standard, along the German vegetable oil fuel standard DIN 51 056. In addition, SOPAC is involved in a number of feasibility studies using pure plant oil in remote area electrification and transport fuel conversion, to speed up the use of clean and green fuel that is abundant on the islands and has a much better smell than diesel, too! ●

