Future perspectives of bioenergy development in Asia

Report of International Workshop, 5-7 Sept 2018

Workshop participants visiting the Showa Shell Kawasaki Biomass Power Plant on the day before the workshop

IEA Bioenergy

Task 32: Biomass Combustion and Cofiring

Task 40: Sustainable International Bioenergy Trade

IEA Bioenergy Task 32 and Task 40

International Workshop: Future perspectives of bioenergy development in Asia

5-7 Sept 2018

Authors:

Jaap Koppejan (Procede Biomass BV), Martin Junginger (Utrecht University)

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The workshop program and all workshop presentations are available at:
https://www.ieabioenergy.com/publications/international-workshop-future-perspectives-of-bioenergy-development-in-asia/

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1 Introduction

From 5-7 Sept 2018, IEA Bioenergy organised a workshop in cooperation with NEDO / METI with support from REI and UNU/IAS in Tokyo, Japan on potential technical and organizational improvements to biomass supply chains, including pre-treatment technologies, bio-refineries, logistics/trade, final conversion/end-use and overarching topics such as sustainability assurance frameworks and policy support options.

The reason for organising the event was that many East and South East Asian countries see rapid development in the use of both liquid and solid biomass for modern bioenergy. Apart from using domestic biomass, Japan and South Korea have started to import large volumes of biomass (wood pellets and palm kernel shells) for co-firing with coal from countries in the Pacific Rim such as Indonesia, Vietnam and Western Canada. In Thailand, Malaysia, Indonesia and several other Asian countries, the trade and use of liquid biofuels in transport and the modern use of solid agro-residues for combustion and anaerobic digestion is increasing rapidly, facilitated by conducive support frameworks.

The workshop provided technical information to decision makers in Asian member countries, but also demonstrated how IEA Bioenergy can support these countries in their development.

The event was attended by approximately 70 industrial stakeholders as well as policy makers, academics and local biomass associations from Japan and other countries in Southeast Asia. The organization of this workshop was led by IEA Bioenergy Task 32 (Biomass Combustion and Cofiring) and Task 40 (Sustainable Biomass Markets and Trade) and the IEA Bioenergy Executive Committee, with additional inputs from other IEA Bioenergy members on the Pacific Rim (Korea, Australia, New Zealand and Canada). Practical local organization (hosting) of the event was provided by NEDO / METI. On the afternoon of 5 Sept, a field trip was held to the Showa Shell Kawasaki Biomass Power Plant (49MWe using wood chips and palm kernel shells). On 6 and 7 Sept 2018, the workshop took place.

In the evening of the 6th September, NEDO hosted a dinner reception. Kees Kwant (former chairman of IEA bioenergy), Jim Spaeth (Chairman of IEA bioenergy) and Dr. Sato (Executive Director of NEDO) and all other participants in the workshop had opportunities to exchange information about biomass energy in the future.

This report provides a brief summary of the presentations. Individual presentations can be downloaded from the IEA Bioenergy website (see www.ieabioenergy.com, https://www.ieabioenergy.com/publications/international-workshop-future-perspectives-of-bioenergy-development-in-asia/)

2 Workshop summary

Opening session

Hiroyuki Kondo, Director General of the New Energy Technology Department of NEDO made opening remarks as one of the organizers. He welcomed key speakers and all audience from Japan and foreign countries. He stressed the purpose of the workshop that discussion takes place from the perspectives of users of biomass in the West and that of producers in the Asian countries. By quoting the "The Fifth strategic energy plan" which was decided by Japanese Cabinet in July 2018 he explained that biomass is renewable energy from the aspect of carbon neutral. He said biomass can generate electric power to adjust fluctuations derived from PV and Wind energy. Finally, NEDO is taking the lead in solving technology issues relating to biomass energy and installing developed technologies in society, such as second-generation bioethanol, biojet fuel, and regional biomass energy solutions as heat or electricity.

Jim Spaeth, Chairman of IEA Bioenergy welcomed everyone to the workshop on behalf of IEA Bioenergy and explained what this Technology Collaboration Programme is doing and how it is working. As an independent organization, the IEA Bioenergy TCP aims at delivering clear and verified information on bioenergy in order to facilitate the deployment of environmentally sound, socially acceptable and cost-competitive bioenergy systems. This is done by various tasks in which appointed experts collaborate.

Takuya Yamazaki, Director of the Renewable Energy Division at the Japanese Agency for Natural Resources and Energy (ANRE), Ministry of Economy, Trade and Industry (METI), presented the rationale for bioenergy in Japan. For various reasons such as a lack of grid interconnectivity, higher costs and a relatively large share of solar PV, renewable energy production has become rather expensive. Dispatchable bioenergy solutions could therefore help in reducing generation costs.

Session 1: Setting the scene

Mr. Dou Kejun, Senior Bioenergy Adviser at the China National Renewable Energy Centre provided an overview of bioenergy development in **China**. Bioenergy currently only covers 0.9% of the total energy demand. Potential is 460 million tons of standard coal (tce), but only 41 million tce are used. Agricultural residues and forest residues are the predominant feedstocks used so far.

As of 2018, about 16 GW of biomass power was installed, and 10 million tonnes of wood pellet production capacity. Until recently, some of these wood pellets produced in China were exported to Japan and Korea due to the high price paid there. Recently however, clean heating policies in China provided a significant impetus to the use of these Chinese pellets for local use, which is now the predominant type of use. While there are policies to more support biomass power plants(CHP), cofiring of biomass with coal is currently just beginning demonstration.

The main rationale for a bioenergy policy is rural revitalization, this includes policies on heating, green rural biogas, and bioethanol use. There is a strong policy support for bioenergy, especially for rural areas. The main barriers include logistic constraints (collection of residues) and lack of standardized/high quality heating equipment.

Jin-Suk Lee from the Korea Institute of Energy Research presented an overview of the bioenergy market in **South Korea**. Cofiring with mainly wood pellets has seen a large growth after 2012 due to the attractive FIT tariff, reaching 2.4 Mtons in 2017. There are however public concerns with PM emission from cofiring, leading to a proposed phase out of subsidies for co-firing (even though this is not scientifically/fact based). Instead, there is strong promotion of local unused forest residues, but mobilisation/logistics are an issue. In order to achieve the 2030 targets, wind and solar PV are expected to see the largest growth rates, while bioenergy is expected to remain steady.

Timothy Ong from Agensi Inovasi Malaysia (AIM) elaborated on the bioenergy situation in **Malaysia**. The palm oil sector has over 90 million tonnes of residues, not just PKS, but also fronds (56 Mt) and tree trunks (17 Mt). PKS is in high demand, but there is also a local demand. The logistic cost to mobilize field residues are substantial. Also biogas from POME ponds is an underutilized resource. Fronds are targeted as a resource for biochemical productions / higher value products. Plans in Sawah/Sarawalk aim at 6 and 5 Million tonnes of biomass respectively for use in biorefineries and for electricity production. Sarawak has plenty of hydro power, thus the biomass end use may be predominantly materials/transport fuels. Renewable energy supply in Malaysia currently limited to 2%. Of that, the largest share is solar, modern biomass has only a minor share.

According to Paul Bennett from SCION, **New Zealand** already has a high share of biomass in industrial/residential heat, but very limited share in for electricity and basically none for biofuels, except for very small use of tallow/dairy residue (whey) for biodiesel/ethanol production. The main policy attention is on afforestation, doubling the number of trees in 10 years. The forestry sector is large in the New Zealand economy (third after meat/dairy and tourism). The main export destination of logs is China. Currently there are only 2 wood pellet mills and there are no pellet exports at present, but definitely an interest to do so. There are 3.9 million tonnes of woody biomass residues available, but again, logistics are an issue.

According to Elis Heviati of the Indonesian Ministry of Mines and Petroleum, biomass could potentially provide 32 GW of power capacity in **Indonesia**, mainly from palmoil residues, rice husks and other biomass residues. The current policy tries to secure affordable energy supply. Up till now, there is about 1.8 GW of biomass power in use of which 0.2 GW on-grid, the remainder off-grid. Pulp and paper amounts to about 1 GW, palm oil waste about 0,45 GW.

With regard to liquid biofuels, the main focus is on biodiesel, with only little bioethanol production/consumption. While B20 is now implemented in the PSO [1]sector with blending rates varying between 5-15%, the incentive is now extended to non-PSO sector as well. The total biodiesel capacity is 1.2 million m^3. Part of it is exported to the EU.

Sustainabilty aspects for upstream biomass production are under the authority of ministry of agriculture, and there are no plans to elaborate sustainability schemes in the near future. Like in Malaysia, a focus area is the increasing biogas production from palm oil mill effluent (POME) to produce electricity, but results are so far disappointing.

It was concluded from this session that we need to find better ways for sustainable production, trade and use of biomass in East and South East Asia. Sudden changes in policy will otherwise affect bioenergy markets.

Session 2: Establishing a sustainable international supply chain

Martin Junginger is professor Biobased Economy at Utrecht University and leader of IEA Bioenergy task 40. This task looks at the options and limitations for increased biomass trade, including standardization, sustainability, etc. He provided an overview presentation of global biomass fuel trade. Long distance trading of biomass fuels has only ramped up since the last 20 years, driven by incentives for use of liquid and solid biofuels as an alternative for coal for power generation and petroleum based transportation fuels on the one hand, and the ability to produce transportable pellets and biodiesel. Overall, about 2% of global bioenergy consumption is currently traded internationally. Global wood pellet consumption currently exceeded 25 million tons in 2015, with Europe as the largest consumer and EU, USA and Canada being the largest producers. In Asia, Japan and Korea have recently shown high growth rates, with Vietnam being a major exporter (>2.5 Mton in 2018) and Korea a major consumer (about 3 Mtons in 2018). With regard to bioethanol, USA is still the largest producer and consumer, while biodiesel is to a large extend being produced in Europe (also the largest consumer), Argentina, Indonesia and Malaysia.

[1] The Public Service Obligation has a blending mandate for biofuels in public transportation.

Michael Wild of the International Biomass Torrefaction Council showed how torrefaction technologies have matured over the last decade and how this can be instrumental in facilitating international biomass trade. During the torrefaction process, water and part of the volatile matter is evaporated from the original feedstock. While the removal of water increases energy density, the removal of volatiles decreases some of the energy content. On a net basis, almost the same energy is contained in the product as in white pellets while the mass is significantly reduced leading the significantly higher calorific values MJ/kg delivered. After pelletisation or agglomeration of the torrefied product, a stable and easily grindable product results with a high energy density that can be easily transported and stored. Compared against normal pellets there are economic and GHG benefits in case of long transportation distances. A number of coal fired power plants have successfully demonstrated how the fuel can be used in existing facilities.

Mr. Issei Sawa, President of Nippon Environmental Energy Development Co. presented experiences with biomass power in Japan. Biomass energy development is driven from diversity of energy sources, lower CO2 and agricultural development. Since the introduction of the feed in tariff (FIT) scheme in 2012, renewable energy was strongly stimulated (particularly solar PV). Biopower was introduced more slowly. Biomass power is seen as a stable and controllable source for baseload power with a high capacity factor, and therefore appreciated as a carbon free regulating fuel for variable renewable energy sources (VRE). The policy target for biomass power in 2030 is about 5GW including 4 GW of wood fired power plants, so far about 1 GW is in actual operation. Next to this, another 2GW including 1 GW of biomass cofiring might be in place. In 2017, Japan imported 0.5 Mton pellets plus 1.4 Mton of PKS. It is expected that pellet imports will increase to more than 5 Mton in 2023. (For comparison, South Korea imported 2.4 Mton of pellets in 2017.)A large fraction of this comes from Vietnam and Thai. The CO_2 reduction from imports is slightly less than that of domestic pellets, but it is considered still acceptable. According to Mr Issei Sawa, biomass trade in the region can be further stimulated by agreeing upon adequate sustainability criteria.

Session 3: Experiences of large scale application of biomass

After a short introduction of Task 32 by Jaap Koppejan, Jan Middelkamp (DNV – GL) gave the first presentation on global experiences with different cofiring configurations and fly ash utilisation options. He covered 4 topics: (see slides). First, he discussed the various routes of realizing cofiring and the components affected by biomass co-firing, and showed examples of power stations co-firing biomass in NW Europe and Canada. He covered issues when converting from coal to co-firing, e.g. dust formation, the (limited) need for flue gas cleaning, SCR catalyst deactivation, NOx reduction, ash quality etc. He also discussed the choices between investment cost upfront and using cheap/ expensive fuels. Especially if high load factors are required, high investment costs may be compensated by the ability to use cheap(er) fuels. He also discussed the pros and cons of steam exploded and torrefied wood pellets compared to wood pellets. Regulatory requirements e.g. emission limits) can also have a major impact on fuel choice. Last but not least, economics play a decisive role- Jan showed with a hypothetical (but typical) example, the cost gap between coal- and bioenergy is typically between 50-80 EURO/MWh. Finally, he emphasizes the complementary role of dispatchable power for cofiring to go hand in hand with wind and solar energy.

Brian Mori then talked about the experiences of Ontario Power Generation (OPG) with cofiring regular (white) pellets and steam exploded (black) pellets at two of their plants (Atikokan and Thunder Bay). Coal to biomass conversions were finalized in 2014 for the Atikokan plant, and in 2015 in Thunder Bay (where one unit of 160 MWe was converted). The Atikokan plant uses white pellets. OPG uses black pellets from Arbaflame at Thunder Bay, as they were looking for a low capex solution due to its water resistance, allowing storage outside. Before deciding upon the supplier of black pellets, OPG tested the weather resistance of torrefied and steam exploded pellets. From these experiments, it was concluded that steam exploded pellets would have superior durability, resulting in less dust formation during handling. The risk of electrostatic discharge risk can be reduced by humidifying ambient air when handling the pellets. OPG

acknowledges that in the current decade, the durability of some suppliers of torrefied pellets has improved significantly, from around 80% in 2010, to over 90% by 2018. The durability of other torrefied pellets still remains behind. Steam exploded pellets have always shown weatherability above 90%. Ultimately Arbaflame pellets prove to have lower dust emissions than coal due to dust suppression measures. The plant has operated well after the conversion. OPG is now partnering with CanmetENERGY to enable the use of low cost wood residues as fuel. Brian emphasized the need for cooperation between suppliers, researchers and utilities to make the transition to black pellets.

As third speaker, Kinya Sakanishi talked about the Japanese cofiring situation. He first illustrated the Japanese policies to stimulate bioenergy. About 20 co-firing plants are operating at the moment; most of them have a relatively small capacity (below 112 MW). Cofiring percentages are typically up to 10% for the larger plants (1 GW), while some smaller plants cofire up to around 50%. Estimates for the biomass requirements vary between 8 and 20 million tonnes of domestic wood supply for energy in Japan, substantial imports will thus be required on the long run. This is not only for cofiring, liquid biofuels are also expected to experience significant growth rates. It is therefore of key importance that sustainable cooperation with other Asian countries is established, to also achieve reforestation and other sustainable benefits.

During the panel discussion, Carsten Huljus raised the point of GHG performance of shipping pellets from US to EU. But OPG is importing wood pellets from Norway. Did they get criticized for this? No, there was not a major backlash. The volume was fairly low, and was mainly determined by the pilot plant of Arbaflame in Norway. The LCA showed that imports were still fairly favorable, so there was a good story to tell. The NOx rate of overseas shipping is however quite high, so that makes imported pellet comparable to coal for this impact category.

Tomas Kaberger added that a similar logic applied to the import of wood pellets from British Columbia to reduce price risks, while the vast majority of supply still was still domestic.

Brian Mori explained that (coal) power plants in Canada still have a good general economic performance, but coal use is banned in Ontario, so cofiring /conversion to biomass may make sense in a few more coal plants in Canada.

Kees Kwant asked about ash utilisation: what are options for ash utilisation. Jaap pointed out an upcoming Task32 study on ash utilisation. He mentioned that the economic business case is not affected much by the ash, but in the EU and Japan there is a discussion about the environmental impacts of utilisation/land filling. Jan Middelkamp also explained that biomass is very different form coal ash, and that off-takers of coal ash may not be able to handle biomass ash.

Session 4. Sustainability of biomass

Kees Kwant (RVO, the Netherlands) introduced the topic of sustainability and presented various aspects such as environment, biodiversity, greenhouse gases, well-being and prosperity. This should be built on trust, which can be ascertained by law, through bilateral agreements or through a certificate system. In case of a certification system, agreed and measurable sustainability criteria are verified through an independent and accredited body before a certificate is issued. Various certification systems are already in place, with their own specific pros and cons. In the Netherlands a system with elaborate criteria is now in place for guaranteeing the sustainability of biomass that is imported for cofiring. From 2020 onwards, detailed sustainability requirements for woody biomass are also firmly included in the EU Renewable Energy Directive 2 (this was not the case in the RED1). It is important that local stakeholders agree on the relevance of sustainability indicators set, and that the chain of custody is ascertained.

Martin Junginger presented the results of an IEA Bioenergy Intertask project on sustainability: covering both measuring, governing and gaining trust. The project analysed how the design of sustainability governance systems and the legitimacy of an authoritative government organisation can help to create trust with various stakeholders. He started off by differentiating between governance (rules imposed and externally verified) vs trust. Here, trust depends on the risk perception of stakeholders. Particularly deforestation is often perceived as a serious risk.
The optimal design of a certification system various from country to country, and depends on the policy setting, options for communication, enforcement, etc. Adequate understanding of the

positions of stakeholder groups and the way they are motivated by their perceptions/misconceptions is key in this. In order to avoid misconceptions, increased public awareness is often needed. As the most trustful source of information, academia and consulting should have a more active role in dissemination and communication. Sustainability assurance needs to be put in place, there is already a patchwork of different rules that needs to be harmonised.

Carsten Huljus of the Sustainable Biomass Program (SBP) presented the details of various certification schemes, including the SBP scheme. Under the EU RED, the use of a certification schemes is compulsory. Examples are FSC, PFC, Green Gold Label and SBP. A sustainability claim in principle proves to the user that biomass has been obtained in a sustainable manner. There are 210 sustainability standards out there of which 30 for solid biomass. Of these standards, SBP is currently the only one with a substantial number of already certified companies that includes GHG certification. In case different companies or countries impose different certification schemes, this makes it more difficult for producers to comply with all schemes. The allowance of third party certification and accreditation is therefore essential.

Takanobu Aikawa of REI (Renewable Energy Institute, Japan) shared his views how the Japanese bioenergy sector could sustainably source biomass. Due to the high population density, it is more than likely that Japan will be heavily dependent on biomass imports in order to achieve its Energy Mix targets. Since the introduction of the Japanese FIT system, biomass imports have steadily increased, particularly in the form of wood pellets and palm kernel shells (PKS). The rapid expansion of biomass might be accelerated by the phase out of coal and increasing co-firing projects. As of today, there are 20 coal fired power plants with plans for biomass cofiring. In addition, it is expected that plans for several new smaller scale coal fired power plants will be changed to dedicated biomass, as the Japanese authorization body announced that they were going to ban low energy efficiency coal plants development even with biomass cofiring. With the increasing demand, sustainability criteria are required. Certification schemes developed for bioenergy such as SBP and GGL are favoured over existing schemes such as FSC and PEFC that were developed for forest management or RSPO for palm oil production, as those schemes were developed for material use (not energy) and GHG reduction is not considered. In this, SBP is a proven certification scheme for wood pellet, while GGL can be used for agricultural biomass too.

In the discussion that followed, it was emphasized that the SBP system builds upon existing systems and that it focuses on the final product, not the resource such as FSC. Further it needs to be noted that biomass is not always a residue, sometimes it is also a product (e.g. in case of pulpwood). In those cases, the same sustainability criteria should in principle apply if a level playing field is to be established.

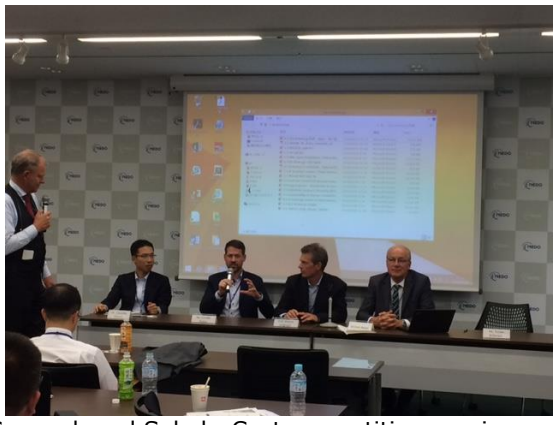
Session 5: future perspectives of regional developments

Moderator Hideo Sakai started the session by showing some of the history of heating technologies in Japan and related forest use in Japan. Next, a number of EU and Asian countries presented on past, present and future bioenergy developments:

For Sweden, Tomas Kaberger showed examples of biomass utilisation in Sweden, and discussed the historic drivers behind the increasing bioenergy use. The main driver was a tax on fossil fuels which led to a bioenergy use of 52 GJ/capita - Swedes use almost as much bioenergy as the Chinese use coal. Bioenergy is the largest source of heat and of primary energy utilized in Sweden, bigger than any fossil fuel. Also large cities use biomass, through district heating from co-generation plants also providing electricity. Biomass electricity from cogeneration plants is still growing – it is mainly produced on cold winter days, when solar energy is not abundant, but power demand is high. Bioenelectricity, therefore fetches a higher price. Due to technological learning, most biomass fuels also have a lower cost than most fossil fuels (even without subsidies and taxes), and thus can outcompete oil and LNG – only coal is cheaper on a /GJ basis isn some cases. Next to woody biomass, also (partly imported) consumer waste combustion is a major source of bioenergy. The transport sector, all transport sectors using liquid fuels (cars, diesel trains) use 1/5 biofuels, in public transport it is 85%, and in the capital Stockholm public transport, they now claim 100% renewable fule and electricity. For the future, further replacing oil by e.g. lignin and tall oil products for automotive fuel production is one of the aims in Sweden.

Izumi Tanaka talked about the drivers in Denmark. One of the most important ones is the decision to become a fossil free society by 2050, and the biomass agreement of 1993. Denmark has managed to decouple economic growth and national GHG emissions since 1990, due to combination of renewables. Regarding electricity, wind is dominant, followed by biomass. In the heat sector, biomass (and to a lesser extent biogas) is dominant, mainly in district heating (predominantly from CHP plants). Biomass power plants vary in size between less than 500 kW on a farm to power plants of >100 MW. Main feedstocks are straw, wood chips and wood pellets. Sustainability of woody biomass is ensured through a voluntary agreement of sustainability criteria for biomass, including a.o. sustainable forest management and GHG footprint.

Dou Kejun provided an overview of biomass use in China. Heating markets are the most important biomass users, even though coal is still by far the largest source of residential heating. Biomass fuels costs are actually quite competitive, with costs of delivered heat very close to that of coal. He then presented several case studies on the combustion of wood residues and biomass district heating. He foresees a large market potential for bioenergy heating in China, but this will require prioritization by policy makers.



Timothy Ong emphasized that a holistic view is needed, i.e. bioenergy as part of the bioeconomy. A portfolio approach is needed, utilizing local biomass, and maximizing the added value. Securing biomass feedstocks has been a problem in the past for industry in Malaysia, and while national/regional resource assessments are important, local governments actually have to carry out the projects. A careful screening is required what feedstocks are available, and what products (e.g. chemicals, & fuels) can be viable, e.g. Ethanol and Monoethylene Glycol (MEG), xylitol, biobutanol and other chemicals. Such biorefineries are currently developed as part of BioHub projects in Sarawak and Sabah. Cost competitiveness is a key aspect to develop such projects. Sustainability issues need to be addressed upfront, e.g. which certification system to use for the feedstock. The biodiesel sector in Malaysia has been hit hard in the past, making investments in biomass and bioenergy related technologies very difficult in the past years. This is now changing again, with a.o. green bonds. Industry will be the major actor driving these developments, not the government.

For Japan, Toshihiko Nakata presented first the general energy system in Japan. Energy is relatively expensive in Japan due to import of fossil fuels. Use of domestic biomass could change that. Biomass use/demand will strongly differ depending on the geographical location (e.g. heating demand, rural or metropolitan environment), and will have to be matched with biomass supply. District heating in Japan is very small, and differs strongly from many other countries (mainly for commercial application, opposed to the use for residential heating in most other countries). Residential district heating based on biomass could thus present a major opportunity for biomass deployment.

Session 6: Forum discussion and closing:

After the presentations in the previous sessions, a forum discussion took place with the policy makers from the region. The forum was moderated by Kees Kwant from RVO, the Netherlands. This resulted in the following **take home messages from the panelists**:

Elis Heviati (Indonesia) is impressed by the use of used cooking oil in the Netherlands and the say cofiring of biomass with coal was put into practice. These could also be interesting models for Indonesia, and she would like to know more on the support measures to develop these.

Timothy Ong (Malaysia): There are many issues to juggle with when implementing bioenergy. Changing the mindset of politicians and stakeholders is perhaps the biggest barrier – once that is favorable, other barriers such as economic and sustainability barriers are more easily overcome. With a new government in Malaysia, this may become easier.

According to Dou Kejun (China), subsidies will still be required for bioenergy to compete with coal, unlike wind and solar which can compete on a marginal electricity basis. He is looking at the other Asian counties at models how to implement bioenergy for heating.

Mr. Yamamoto Takeshi (Japanese Biomass Power Association) was impressed by the growth of bioenergy in Asian countries presented at the workshop. Cooperation between Asian countries and economic sustainability are two major priorities to further pursue in the future. He pointed out that in the transition to a renewable electricity system wind and solar power are intermittent power sources, whereas biomass is dispatchable, and thus in his view very complementary. Biomass can also contribute more to the regional economy, e.g. in terms of employment for production of biomass and logistics. Finally, it will also reduce import dependency of fossil fuels and help improve energy security.

Mr. Seiji Morishima thanked IEA bioenergy for organizing this workshop. He then continued to point out that Japan still wants to learn a lot from other countries on biomass utilization. The issues (costs, how to organize the supply chain, sustainability) that some EU countries have been facing are now also crucial for Japan. Especially the better utilisation of heat is one of the opportunities to increase energy efficiency, and so a heat feed in tariff could be an interesting policy option to explore.

Kees Kwant then asked all panelists how IEA Bioenergy could help their countries forward.

Ms Heviati pointed out that Indonesia is currently not a member, but would like to engage with IEA Bioenergy to define more adequate sustainability indicators. In industrialized countries, sustainability often mainly refers to environmental sustainability, whereas in Indonesia also economic and social aspects of sustainability are considered very important.

Mr Ong also shares the concerns regarding the sustainability views of the EU of palm oil. But he also agrees that sharing information on bioenergy development is essential. On biomass trade: it is not just elevating renewable energy share of other countries, but biomass should also be used locally. Malaysia is also very interested in learning about pretreatment technologies to improve the economics and efficiency of the supply chains.

Mr. Seiji Morishima would be very interested to involve other Asian partners in IEA Bioenergy and have similar workshops as this one in the future.

Paul Bennett pointed out that all countries have different policy landscapes. IEA Bioenergy should provide high-level policy support based on robust scientific evidence.

Dou Kejun pointed out that China could learn more from IEA Bioenergy about biomass, and quoted a Chinese proverb: ‘to learn from each other is a way to offset ones weaknesses’. He is particularly interested in clean biomass heating technologies.

Also other panelists and audience members subscribed to the need for more exchange of information of bioenergy deployment, and that IEA Bioenergy would be a good platform for this. Other topics where participants saw a role for IEA Bioenergy were:

- the ability of bioenergy to balance wind and solar power
- new financing mechanism for bioenergy, e.g. crowd funding
- information about the successful development of bioenergy heat infrastructure,
- roadmaps for bioenergy development

Jim Spaeth concluded the workshop and asked the audience about the need to meet again to continue this information exchange; and encouraged participants to contact him and engage with IEA Bioenergy. These kind of events are at the heart of what IEA Bioenergy does, and he would welcome further participation by Asian countries. He pointed out that the costs of joining IA Bioenergy are relatively modest - ~20,000 US$ annually is enough for joining the Executive Committee (ExCo) and 1 task – but the additional important investment is in the time and resources to attend meetings and to participate in the ExCo and tasks.

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Further Information

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