

Stakeholder Engagement in Developing a Sustainable Biomass Policy for Japan

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Abstract

Japan has just decided (June 2012) the initial conditions for a new policy to encourage renewable energy based on a Feed-in-Tariff (FIT) system. This paper describes an attempt to influence the regulations covering solid biomass, and to advocate that the criteria used in the FIT system give adequate recognition to sustainability. The approach used a stakeholder engagement process to develop a consensus among non-governmental stakeholders on the sustainability criteria which should be applied, before attempting to influence the regulatory process by a combination of direct contacts in the regulatory process and wider publicity. Despite this effort, the regulatory decision ignored several critical issues related to sustainability. This paper describes the rationale behind this project, the process used and its results, and assesses its influence on the regulatory process.

Keywords: *solid biomass, sustainability, forest biomass regulation, carbon emissions from biomass, renewable energy policy.*

1. Background Situation

Japan, despite 2/3 of its area being forest, relies extensively on imports for timber; annual imports have been between 50-85 million m³ over the last 40 years (Forest Agency, 2011). Such imports have exerted major impacts on supplier countries' forests and their environment, and supplies have shifted as forest resources in one country after another have been depleted¹. Until 2006, there were no requirements in either the private or public sectors in Japan related to legality or sustainability of timber imports, but the Green Purchasing Law

was amended in April 2006 to limit government procurement of wood and wood products to those with verified legality (Ministry of the Environment, 2007). In the guidance on this law, sustainability² is not a requirement but is listed as one of the additional factors for consideration in procurement decisions.

Global biofuel markets started to expand in the 1970s when countries such as Brazil and the USA promoted bioethanol production, and global ethanol production for energy reached 49.5 billion litres in 2007 (UNCTAD, 2009). The original aim was to strengthen national energy self-sufficiency, but this has been supplemented by seeing biomass

¹ Philippines' supplies of tropical timber to Japan peaked in the 1960s, after which supplies shifted to Indonesia and Malaysia in the 1980s, and Papua New Guinea; in addition Japan is one of the main consumers of wood chips from Australia, US, Canada and Chile (JATAN, 2006).

² Defined as whether the wood has been obtained from a "forest that is conducting a sustainable operation".

as one of the ‘renewable’ energies which can contribute to greenhouse gas (GHG) reduction strategies. Liquid biofuels (ethanol and biodiesel) have already raised concerns over the effects of competition between biofuel crops and food crops, and on demands for additional land (Royal Society, 2008; Nuffield Council on Bioethics, 2011; EU, 2011; Bergsma et al, 2010). In recent years, solid biomass for heat and/or electricity generation has attracted attention and large scale co-firing of wood chips in coal-fired power stations has been reported in Europe and Japan. Indeed, in the EU it is anticipated that up to half of the 2020 target to supply 20% of electricity from ‘renewable’ energy, will be supplied by biomass generation (EU, 2010).

The reason that biomass is regarded as ‘renewable’ energy and is such an important part of some national strategies to reduce GHG emissions is that it is assumed to be ‘carbon neutral’; carbon in the biomass originated in the atmosphere, and the CO₂ emitted when it is burnt is assumed to be re-absorbed when vegetation regrows. Emissions from biomass are not currently accounted for in the energy sector when countries report under the UN Framework Convention on Climate Change (UNFCCC). In Japan, this has led to electricity generators using imported biomass to co-fire in coal-fired power stations, since this allows them to “reduce the carbon intensity of electricity generation” (Keidanren, 2009)³.

Following the 2011 East Japan earthquake and tsunami, Japan's attitude to nuclear power changed substantially. Prior to the disaster, Japan's basic energy plan envisaged construction of 14 additional plants by 2030, but since the disaster emphasis has shifted to reducing future dependence on nuclear power; one component of this strategy is to increase to 20% the proportion of electricity produced from renewable sources by 2020 (Prime Minister's Office, 2011). This uses a

³ Under current UNFCCC accounting rules, CO₂ emissions from biomass are accounted for under the ‘land use, land use change and forestry’ (LULUCF) category. If a country imports biomass and substitutes for coal, the utility can thus ignore the GHG emissions at the combustion stage, so that it can claim that its CO₂ emissions per unit of electricity generated have been reduced. In fact, the amounts of CO₂ emitted from the stack are not reduced.

Feed in Tariff (FIT) system whereby utilities are obliged to pay nationally-decided rates to suppliers of electricity from photovoltaic, wind, geothermal and biomass sources.

In view of the historical impact of Japan's imports of timber on the forests of other countries already mentioned, there are grounds for concern over the potential environmental impact of increasing imports of biomass. A FIT system which led to large scale imports of biomass without appropriate criteria on the sustainability of supplies could accelerate deforestation in supplier countries, contributing to biodiversity loss and increased carbon emissions. The authors thus proposed a project to develop a consensus among key stakeholders of the sustainability criteria which should be applied to biomass. The project was started in July 2011 and completed in June 2012⁴. This paper discusses the basis of the project, its results and influence, and analyses the lessons which can be learnt to inform similar projects in future.

2. Theoretical Considerations

The theoretical basis of this project was that without stakeholder engagement, the regulatory bodies responsible (particularly the Ministry of Economy Trade and Industry-METI) would not include appropriate sustainability criteria. The question whether METI would introduce appropriate criteria for biomass sustainability can be addressed from the perspective of Organisational Learning Theory. Studies of the way organisations deal with sustainability are relatively few, but one by Zietsma et al (2002) looked at the response of a Canadian logging company to pressures to adopt sustainability criteria, and the way in which change was achieved within the organisation. The process was seen to have followed the sequence posited by Crossan et al (1999), who saw organisations which adapt to changes in the external environment as employing ‘feedforward’ learning, whereby individuals at group and organisational levels develop and assimilate new learning through a process involving the four stages of ‘intuiting, interpreting, integrating, and institutionalizing’. The first step is

⁴ This project was funded by the UK Government Prosperity Fund.

the one of ‘intuiting’ where individuals recognise new patterns or possibilities based on their experiences or images; once the new information or perspectives (previously not present in the organisation) emerge, they are shared with others and enter the ‘interpretative’ phase which develops new cognitive maps and learning processes. Extending to the next ‘integrating’ phase develops coherent and collective action after which the new actions and interpretations are ‘institutionalized’. How likely would it be for METI to enter the first key ‘intuitive’ phase to create the impetus to incorporate sustainability thinking into a new biomass FIT system under their current organisational priorities?

Looking upon the Japanese Government as an organisation, Japanese departmental structures are characterised by vertical segregation so that communication between ministries is limited and a cooperative and system approach is not encouraged. Previous events have illustrated the tendency for *tatewari gyosei* (vertical administration) where agencies jealously guard their turf and do not cooperate with each other (e.g. Fukushima, 1995; Amyx, 2004). METI’s priority is economic development, and this has a higher priority than environment issues⁵. In addition, even the Ministry of the Environment (MOE) and the Forestry Agency of the Ministry of Agriculture (MAFF) do not have a strong position on sustainability of timber, because as already noted, the current rules on Green Purchasing focus on legality. There was thus reasonable doubt whether ‘intuiting’ individuals would exist with the institutional motivation or personal background to introduce sustainability to a policy mechanism driven by the need to increase energy supply. We thus saw our project as an external source of ‘intuiting’, which could then trigger the later stages of the internal organisational learning process.

⁵ This priority can be seen in the relative lack of green initiatives in Japan’s initial response to the post-financial crisis stimulus measures. Whereas many countries included substantial measures for tackling climate change and a transition to a low-carbon economy (HSBC, 2009), the ‘green’ content of Japan’s economic stimulus was only 2.6% compared with Korea’s 69%, China’s 34%, Germany’s 19% and USA’s 16%.

3. Defining The Issues For Debate

The issues relevant to Japan’s biomass policy were derived from an analysis of European experience; liquid biomass is already subject to uniform regulations across EU member states under the Renewable Energy Directive (RED) which sets minimum standards for reducing GHG emissions across the complete life cycle (from biomass production to final production of energy), and seeks to avoid damaging effects on biodiversity where biomass is taken from forests without regard to sustainability and legality⁶.

The EU also examined the sustainability issues of solid biomass used in electricity, heating or cooling (EU, 2010), but setting detailed rules remains the responsibility of Member States. The main issues relevant to solid biomass are in Table 1

The EU expects solid biomass to be subject to similar restrictions on efficiency and sources to those already existing for liquid biomass. However, when biomass is sourced from forests, additional issues arise with respect to the source of wood and the sustainability of the forest management involved. The UK is one of the first Member States to act on the sustainability of solid biomass used for energy generation and has set criteria as (DECC 2011, 2011a)⁷:

- Minimum of 60% GHG lifecycle emission saving for electricity generation (relative to fossil fuel);
- Restrictions on using biomass sourced from land with high biodiversity value or high carbon stock – including from primary forest, peatlands and wetlands;

⁶ The RED (EU, 2008) specifies:

- Minimum of 35% GHG saving compared to fossil fuel (rising to 50% in 2017, and 60% in 2018 for new installations);
- General restrictions on using biomass materials sourced from land with high biodiversity value or high carbon stock – including primary forest, peatland and wetlands.

⁷ Compliance with these criteria is mandatory for generators of over 1MW, but those below 1MW and over 50kW are only required to report on their activities.

Table 1

Key sustainability issues for solid biomass

Issue	Comment
Sustainability in production (land management, cultivation and harvesting)	Sustainability concerns include the protection of highly biodiverse ecosystems and of carbon stocks such as those in forests. Increased demand for biomass feedstock warrants vigilance in how far and in what way the expected expansion will impact on carbon stocks in forests and agricultural land and soils.
Land use, land use change and forestry accounting	Deforestation, forest degradation and other practices can result in a significant loss of terrestrial carbon and/or significant changes in productivity. Emissions related to land use, land use change and forestry (LULUCF) thus need to be properly accounted for. In case such issues are insufficiently addressed at international level, the EU may need to introduce a procedure to address potential sustainability problems.
Life cycle greenhouse gas performance	Life Cycle Assessment (LCA) shows that the GHG balance of bio-energy systems differs depending on the type of feedstock, carbon stock changes due to land use change, transport, processing of the feedstocks and the conversion technologies to produce heat or electricity. The LCA method should follow the energy chain from source to final energy (electricity, heat or cooling).
Energy conversion efficiency	This is critical to overall GHG reduction performance, so support schemes need to differentiate in favour of installations that achieve high energy conversion efficiencies, such as cogeneration plants.

Source: adapted from EU (2010)

- Information reporting is required on biomass type, format, mass or volume, country of origin, whether waste, energy crop or by-product, if it meets an environmental standard and the name of the standard, plus details of land use changes since January 2008;
- When the biomass used is virgin wood, this should be sourced from a sustainably managed forest⁸, whether domestic or imported.

The EU is also deliberating on as yet unresolved issues which have emerged since the basic RED regulations were adopted. These have potentially serious implications for future policy for the reasons below:

Carbon neutrality and carbon debt. As already noted, biomass energy is treated as a 'renewable' energy contributing to GHG reductions. In reality however, when forest biomass is burnt, the carbon in the wood is released into the atmosphere immediately. Moreover, as efficiencies of biomass electricity generation may be lower than fossil fuel, energy from woody biomass can have net GHG emissions per unit of energy that are initially

⁸ Sustainability is defined in the same way as for government green purchasing (CPET, 2011).

higher than those from fossil fuels. It is assumed that such emissions are offset through increased absorption of carbon through plant regrowth.

The rates at which the initial carbon release (termed the ‘carbon debt’) is re-absorbed have been studied for a number of forest-related scenarios (see for example the review by Blomqvist, 2010; and Hudiberg et al, 2011). Such research indicates that it may take decades or even centuries for the carbon released to be re-absorbed and carbon neutrality achieved; moreover there are scenarios where such neutrality is never achieved. Using woody biomass for bioenergy is thus **not automatically carbon neutral** (European Environment Agency, 2011). For example the additional CO₂ emissions from a rotation forest in Austria take 280 years to reabsorb (Zanchi et al., 2010). The risks of such long-term carbon debt vary with the source of forest biomass, as summarised in Table 2.

The reality that biomass energy may lead to an initial increase in GHG emissions and may only reduce them over a long period has implications for climate change. Atmospheric concentrations of CO₂ are growing at 2 ppm annually, and the advice of the International Panel on Climate Change (IPCC) is that net emissions of GHG must start to decline within the next few years and halve by 2050 to avoid ‘dangerous’ climate change (IPCC, 2007). By releasing as much (if not more) GHG as

fossil fuels in the short term, biomass energy makes no contribution to short-term climate change strategy. Whether biomass can contribute over the 20-40 year time scale depends on the source of the biomass and its regrowth rate. As a consequence, there is an argument that biomass should only be classified as a renewable energy contributing to climate change policies (and thus eligible for the associated subsidies), when it produces a GHG saving over a climate-relevant timescale (10-40 years). Thus energy from waste and currently unused residues would continue to attract support under FIT and similar schemes, but sources which provide little or no net GHG reduction over this timescale (which could include much biomass derived from felling forests) would not.

Carbon accounting. This second issue relates to current guidance that emissions from bioenergy should be accounted for under the category of LULUCF (Table 1), and not when the biomass is burnt. Reporting LULUCF emissions is voluntary; many countries do not report, and thus many of the emissions from burning forest biomass are ignored. Negotiations to resolve this anomaly are underway, and national policies which exploit these rules to create the appearance of GHG emission reductions would be exposed as lacking any inherent value if these rules were changed.

Table 2

Carbon debt risk for some biomass sources

Biomass source	Risk of carbon debt
Additional felling in managed forests	High
Extraction of harvest residues from managed forests	Low
Reinstating management in neglected woodlands: clear felling	High
Reinstating management in neglected woodlands: thinning	Medium
Felling of old-growth forests	High
New forest plantations replacing permanent grassland	Low
New forest plantations replacing mature forest	High

Source: adapted from Blomqvist, 2010.

Indirect Land Use Change. This third issue arises because land allocated to biomass production is no longer available for the previous use (whether for crops, food or animal feed). The previous demand is thus shifted to new areas, leading to additional deforestation or land conversion with potential impacts on GHG emissions, biodiversity and the people dependent on the land converted (IEEP, 2010). One analysis (Bergsma et al, 2010) suggests that meeting current targets in the EU for biofuels by 2020 will cause the conversion of 69,000 km² of land across the world to compensate for the areas dedicated to biofuels- just to supply EU demand (for oil seeds, palm oil, sugar cane, wheat, etc.). The European Environment Agency scientific committee has concluded (European Environment Agency, 2011) that ILUC is potentially a very significant factor, and has the potential to release enough GHG to negate the savings from conventional biofuels. Such factors may also apply were land to be switched from agricultural use to plantation forests for biomass.

Such unresolved issues raise the question whether Japan's new policy should anticipate potential

future changes in current regulatory approaches, and this was one of the issues for debate in the consensus process.

4. Identifying The Stakeholders

Stakeholders in the regulatory process include the government departments with relevant responsibilities. The Forest Agency (FA) of MAFF is concerned with the economic value of local forests; both FA and MOE are concerned with illegal logging. METI is responsible for the renewable energy system, while the Cabinet Office's National Policy Unit (NPU) has launched a "National Growth Strategy", in which both renewable energy and local forestry would be promoted. There is no direct remit for sustainability.

A number of NGOs have been concerned with renewable energy in general, biomass in particular, and issues of environmental sustainability (Table 3).

Table 3

NGO Stakeholders

Organization	Main Interests
The Biomass Industrial Society Network	Promoting use of biomass from economic, social, and environmental sustainability viewpoints.
Institute for Sustainable Energy Policies	Reforming energy policy, including both abolishing nuclear and promoting renewable energy sources.
The Pellet Club	Promoting wood pellets market in Japan, by networking citizens and local government, and the industrial sector.
WWF Japan	Promoting sustainable forest management and combating illegal logging to promote sustainable development especially in the developing world.
FoE Japan	Promoting sustainable forest management and combating illegal logging to promote sustainable development especially in the developing world.
Japan for Sustainability	Providing information on developments and activities in Japan that lead toward sustainability.
Global Environmental Forum	Promoting sustainable forest management and combating illegal logging to promote sustainable development especially in the developing world.

In addition, some research organisations have relevant expertise on forestry biomass applications such as the Forestry and Forest Products Research Institute (FFPRI).

The initial choice of stakeholders was thus both the responsible departments and the NGOs above, with the FFPRI consulted on relevant data.

5. The Stakeholder Engagement Process

The engagement process started with visits to each stakeholder to explain the background and purpose of the project and invite their participation. Efforts were made to convince each stakeholder that their participation would be more likely to lead to an outcome they could support, than if they failed to participate⁹. We pointed out that solid biomass differs from other 'renewable energy' technologies in that it interacts with other important issues both nationally and internationally. Our initial analysis suggested that FIT policy should consider:

- a) Environmental aspects: in particular the net reduction in CO₂ emissions resulting from the use of solid biomass over the full lifecycle.
- b) Sustainability of the feedstock. This includes the criteria for assessing the impact on sustainability in the source country, certification systems, and ILUC issues.
- c) Energy security: one objective of renewable energy policy is to strengthen Japan's energy security, raising the issue of how to approach imports and domestic sources.
- d) Economic aspects; biomass has the potential to help revitalise Japanese forestry and local economies by creating a new market for forestry residues and/or biomass-oriented forestry. On the other hand it has the potential to distort current markets if it creates demand for sources of timber currently used in lumber, paper or board.

Following these consultations, all the NGOs and some government departments were willing to participate in the consensus building process, but two key government departments declined to do

⁹ The Best Alternative to a Negotiated Agreement (BATNA) approach in consensus development theory (Fisher et al., 1991).

so. One factor may have been because the key regulatory department (METI) may have perceived little advantage in its participation (a high BATNA); but the fact that project funding was from a non-Japanese source was also cited. This meant that the original target of developing a consensus between the regulators and the external stakeholders had to be modified. Instead it was decided to aim to develop a consensus among the external stakeholders and then seek to influence the policy process after a consensus had been reached.

The consensus development process used stakeholder roundtable meetings. The first roundtable meeting was held between the authors and the 3 most active NGOs to discuss the issues which need to be considered, the relevant factors which apply to each issue, potential outcomes of the stakeholder process, and how should roundtable meetings be organised to develop consensus.

This meeting allowed a position paper (PP) to be drafted which set out the key issues and also included 2 scenarios¹⁰ to illustrate the potential beneficial or detrimental effects of various policies. Detailed minutes would be taken in real time, checked against an audio recording and circulated to all attendees. Rules for the roundtable were also derived to reassure participants that their comments would not be made public so that participants would feel free to express their opinions.

The second roundtable provided all stakeholders with briefing documents on:

- Project aims and overview
- Review of EU experience and leading national strategies (UK, Germany and Finland)

¹⁰ One where the Japanese system encouraged the large-scale import of unregulated timber; this would make little contribution to economic security or the local economy or forestry, actually increase global CO₂ emissions and potentially lead to damaging deforestation in supply countries. The second was of small to medium scale local biomass using domestic sources which could contribute to local economic revitalisation as well as sustainable forestry without adverse impact outside Japan, while potentially reducing global emissions of CO₂ over the medium term.

- Review of current scientific issues of carbon debt, ILUC and carbon accounting.
- Review of Japan's regulations relevant to renewable energy, sustainability and 'green' certification schemes.
- The PP drafted after the first meeting.

All the stakeholders in Table 3 were represented; two by the CEO (or equivalent) of the organisation; the remainder by the senior specialist on biomass. The meeting started with an opportunity for each stakeholder to introduce their organisation and priorities, and to clarify their target in the consensus process. The meeting then proceeded to a series of discussions on key issues highlighted in the PP (Table 4).

Table 4

Issues addressed at the roundtable meeting

Energy security	Local economy and forestry
Environmental issues of GHG reductions, targets and LCA, time required for carbon reabsorption, thermal efficiency	Biodiversity issues and ILUC
Carbon accounting and international issues	Potential competition of biomass with other uses of timber
Implementation including traceability	

Initial statements revealed differences between the environmental NGO stakeholders and the stakeholder representing the biomass supply industry. The latter was concerned that specific sustainability criteria for biomass would impede future market growth; sustainability had not been an issue considered by the industry up to now, and there was concern that standards would reduce the competitiveness of biomass relative to fossil fuels (which obviously do not have sustainability criteria). A number of stakeholders recognised the potential impacts of Japan's FIT policy on other countries; however they did not favour overt discrimination against imports, partly because of WTO restrictions against non-tariff barriers, but

also because they judged that biomass could make a contribution to Japan's own environmental performance, if properly managed. Initial statements also recognised the importance of ensuring that biomass energy did make a real contribution to global warming policy. The challenge of applying sustainability standards to power generation when not currently applied to other imports (for paper and board) was also highlighted. One particularly prescient comment questioned whether METI would actually have time to develop a detailed policy in the time period set by the Government, and believed the deadline should be extended.

Moving to the issues on the agenda (Table 4), the relative pros and cons of domestic sources versus imports created considerable debate. Co-firing in coal-fired power stations depends on large-scale imports with their potential damage to ecosystems in supply countries, and there was thus a strong view among the NGOs that the FIT system should not subsidise co-firing. In contrast, the biomass industry stakeholder questioned whether domestic supplies were more sustainable or more economically viable than imports. There was consensus over the need to consider the extent of GHG reductions, although debate on the detail started to identify differences of opinion. Detailed issues which threatened to undermine consensus included the role of FSC, the scope of the LCA analysis and default values, and the methods used to validate traceability. On economic aspects, debate focused on the costs and economic benefits of the FIT subsidy and to what extent the use of public money should be seen as overtly or indirectly prioritising stimulation of local economies. The danger of diversion of timber from current uses was also discussed.

Since it became apparent that attempting to provide detailed guidance would exacerbate differences between stakeholders, the authors recommended that the meeting focus on core principles and aim to develop consensus on the minimum standards necessary for a sustainable FIT system. It was argued that the objective was not to decide the policy detail but influence the basis on which it is set. This was accepted and the authors drafted a second document focused on these principles and circulated it for comment. After amending in the light of specific comments

received, the final statement was agreed by all stakeholders (after consultation within each organisation's approval process). The final consensus was agreed in January 2012 and is shown in the Annex.

The Consensus Statement was issued to all the departments which had been consulted at the first phase of the project. A public symposium was also held (19 March) which broadened the involvement of other groups and organisations in the debate process (200 participants from the media, industry groups, NGOs etc took part).

6. Engaging With the Government Process

The Government process was based on the 2011 "Renewable Energy Special Measures Law (FIT System)" law which (in Article 3) stated that the Minister of Economy, Trade and Industry shall decide the purchasing price and period according to the classification and sizes of power stations, taking into consideration the views of the other related ministers (MAFF and MOE included) and a *chotatsu kakaku iinkai* (purchasing price expert committee). METI thus established this committee as its main public consultation process, and a presentation on the Consensus Statement was given by one of the leading stakeholders to the committee at one of its public hearings. The committee's recommendations were announced on 27 April and set prices for the electricity generated by solid biomass into 4 categories¹¹ (METI, 2012). However, the committee failed to address sustainability as an issue. They also failed to link price to scale (a strategy used in some European countries to promote local biomass energy), and failed to acknowledge or support efficient methods like co-generation.

In the METI regulatory process, there is a short consultation period during which public comments can be submitted. It was decided to hold a final stakeholder meeting to discuss the major weaknesses of the committee recommendations,

¹¹ These are: unused wood (for example forest residues and thinning) 32 yen; general timber (this would be the category applied to imported wood and chips) 24yen; agricultural and food wastes, and sewage sludge 17yen and recycled wood (from construction demolition etc.) 13yen/KWh.

which agreed a set of public comments which were sent to METI on 1 June. The main points were:

- The Committee's report has completely ignored the key issue of sustainability.
- Biomass, in contrast with other forms of renewable energy, has many different production methods and patterns of supply, with large variations in their potential for reducing greenhouse gas emissions and in their effects on eco-systems in the source country.
- For imports it is necessary to consider the potential adverse impacts on the environment and ecosystem of the supplying country.
- Recognising these special characteristics of biomass, internationally, sustainability-related criteria are being applied for both liquid and solid biomass. Moreover, even in Japan standards for sustainability have already been established for liquid biomass, and previously the committee established to look at the basic principles for a feed-in-tariff system (February 2011) emphasized that:
 1. Biomass should not lead to change from previous uses, or lead to increased prices of previous use products (food supplies etc).
 2. Use should be sustainable (should not cause adverse effects on ecosystems or stimulate forest destruction).
 3. Life-cycle assessment should be used to assess the contribution to global warming policy.
- In view of these critical deficiencies, the FIT system rules should be amended to incorporate the principles expressed in the consensus statement of January 2012.

The final decision on the FIT system was announced by METI on June 19 (METI, 2012a). The outcome was for METI to confirm the committee recommendations with no significant change. The criteria for solid biomass thus fail to even apply the standards on GHG reductions and protection of biodiversity already adopted in Japan for liquid biofuels.

What can be learnt about METI's reasons for this decision? The decision was announced just 2 working weeks after the deadline for public

comments (METI, 2012b), which attracted some 5000 comments (for all fields of renewable energy). The METI response to the comments is an overview rather than responding to individual comments and this allows the detailed points related to sustainability to be diluted or in some cases completely ignored. Summarising METI's responses to points emphasized in the Consensus statement:

- a) Specific support for high efficiency cogeneration is rejected as unnecessary.
- b) A recommendation that the environmental burden of biomass should be calculated is rejected.
- c) Calls for differential pricing to encourage small and medium scale generation is rejected.
- d) A recommendation that sustainability of the biomass source should be considered is rejected for the present but accepted as a possible matter for consideration in any future revisions.
- e) A call for minimum efficiency standards for biomass-using facilities is ignored.
- f) Traceability (for the purpose of ensuring the appropriate price to be paid under the FIT system) is deferred to guidance by the Forest Agency).
- g) Specific calls for application of LCA are ignored on the grounds that the simple traceability system is sufficient to cover issues related to the life-cycle.
- h) Proposal to include 3rd party assessment in the traceability process is rejected.
- i) Co-firing with coal is eligible for the 24yen standard rate without limits on the amount.
- j) There is no mention anywhere in the METI response of the keywords 'global warming', 'climate change', 'greenhouse gases', 'biodiversity', 'areas of high carbon stock', 'deforestation', 'ILUC', 'LULULF' which are all keywords in the current EU debate on biomass policy and which were all emphasized in the Consensus Statement.

7. Discussion

Having described the process and outcome, we can consider the questions of whether we had an impact on the regulatory process; and could the consensus process have been improved?

The answer to the first question is that the impact of the consensus process on the FIT rules was clearly limited. METI excluded from its terms of reference anything outside the narrow economic issue of what price should be allocated to what type of biomass. A reason frequently cited in METI's rejections was that the terms of reference were tightly limited by the original law. As already noted, Article 3 did specify that the METI Minister (taking into consideration the views of the other related ministers and the expert committee) should decide the "purchasing price and period" for the FIT system, and did not include non-economic factors in this basic term of reference. However, Article 1 setting out the purpose of the law referred to renewables as being important for a stable energy supply and reducing environmental burdens. Whether through the intervention of the other departments, or in compliance with Article 1, we consider that METI had sufficient mandate to incorporate sustainability criteria. Moreover, a committee established by METI earlier to advise on the framework for the FIT system specifically recommended that biomass include criteria on both GHG emission reductions and on the sustainability of the source (METI, 2011).

The *chotatsu kakaku iinkai* committee itself comprised 5 members: a university economics professor, a university industrial policy professor, an expert in environmental economics, a representative of a consumer association, and the director of an environmental technology research institute. None had any personal knowledge of biomass or sustainability issues, and 2 members had gone on record previously as criticising the FIT system and renewable energy¹². The committee discussed biomass in their 4th meeting (April 3rd) and heard evidence from a company operating a biomass power plant, from an association of waste disposal, a company operating sewage sludge generation and associated biogas.

¹²

<http://www.kiconet.org/iken/kokunai/archive/pr20111124.pdf>

At this meeting, one member did point out the importance of heat utilization of biomass and suggested a premium for cogeneration, but this comment did not influence the final report. This outcome is consistent with our initial concerns whether METI specifically or the Japanese Government system in general possessed the necessary 'intuiting' capacity to address sustainability issues.

Even though the consensus process created an external source of 'intuiting' related to sustainability, the system was able to resist and reject such stimuli. The limited amount of time, the selection of the expert committee, and the limited evidence all contributed to this, but the ability to selectively ignore issues which may be either too difficult or troublesome to address is made easier by the limited transparency of the regulatory process. Despite adopting some approaches to transparency including the request for public comments and publication of the expert committee proceedings, as pointed out by Marcus (2001), there is no quality control mechanism to check that the regulatory process made reasonable attempts to address comments received; neither is there a requirement to publish *ex parte* contacts. Recent publication of the parliamentary enquiry into the Fukushima Nuclear Accident (Diet of Japan, 2012) revealed the extent to which electricity companies worked behind the scenes in METI and its Nuclear Industrial Safety Agency to avoid burdensome regulations. Given that one possible beneficiary of the FIT system adopted may be large electricity companies importing biomass for co-firing, it would be interesting to know if there were related *ex parte* contacts in the biomass regulatory process.

Regarding the process itself, stakeholder consensus has attracted considerable interest and research analysis particularly in the planning field (e.g. Innes et al., 2004); this literature has developed a range of guidelines on realistic expectations and practical approaches to consensus building. Organisers must try to ensure that all the participants stay attached and committed to the process, and particular emphasis is placed on each player having something to offer the others to encourage the reciprocity required in consensus. Our project certainly benefited from this experience but most stakeholder consensus theory

has been developed in circumstances where there is disagreement and various levels of power within the participants which have to be managed. Our project started with similar objectives, whereby the players within the Government Departments would have interacted with the NGOs with a clear difference in power; representatives of the departments having the regulatory power which greatly outweighed the power of other stakeholders. As Innes (2004) points out, consensus building allows stakeholders who may have weak positions or limited access in normal situations to meet the powerful stakeholders, to express their needs and thinking to the powerful stakeholders in a context where their views are heard.

However, the 'powerful players' (the regulatory departments) declined to participate in the stakeholder consensus process (perhaps because they considered that their BATNA was already sufficiently strong and thus had nothing to gain from participating). As a result, our process evolved from resolving differences between stakeholders to a process aimed at increasing the influence of stakeholders who are external to the normal policy process, or whose influence may be limited or even wholly excluded from it. We did this by developing a more detailed common message which we believed would exert greater influence than could be achieved by each stakeholder acting separately. Consensus practice recognises that motives are not just about agreement but also include other objectives (Innes, 2004).

Even though our motive may have been to strengthen influence, we did observe the factors in other consensus processes which involve dispute resolution. At first stage there was potential for dispute between the environmental NGOs who supported sustainability standards for biomass, and the stakeholder of the biomass suppliers who was concerned to avoid any additional controls measures. However even this position recognised the importance of maintaining 'renewable energy' credentials and avoiding biomass being seen as a dirty or environmentally damaging fuel. There was thus a benefit to be gained by creating a consensus with the NGOs, and this was achieved by shifting the debate from operational details to basic ethical values and broad policy objectives.

8. Conclusion

Our project demonstrated that it is possible to apply successfully a consensus-building process between NGOs related to biomass sustainability issues in Japan. However, the project also highlighted the strong resistance to considering sustainability in an issue of such critical economic and political importance. Ironically, the METI

final decision was announced just 1 day before the start of the June 20-22 Rio+20 conference on sustainable development, and is a reminder of the continued challenges of incorporating sustainability considerations into economic and energy policies.

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Glossary

BATNA	Best Alternative to a Negotiated Agreement
EU	European Union
FA	Forestry Agency
DECC	Department of Energy and Climate Change
FIT	Feed in Tariff
GHG	Greenhouse gases
ILUC	Indirect Land Use Change
IPCC	Intergovernmental Panel on Climate Change
LCA	Life Cycle Assessment
LULUCF	Land use, land use change and forestry
MAFF	Ministry of Agriculture, Forestry and Fisheries
METI	Ministry of Economy Trade and Industry
MOE	Ministry of the Environment
NGO	Non-governmental organisation
NPU	National Policy Unit
RED	Renewable Energy Directive
UNFCCC	United Nations Framework Convention on Climate Change

Annex:**Principles Concerning the Promotion of Sustainable Use of Biomass Energy in Japan and the Design of an Appropriate Fit (Feed-In-Tariff) Regulatory System (January 2012)****Consensus Statement****1. Background**

- We, in order to avoid the serious effects of climate change as a result of continued global warming, believe the use of biomass energy (both within and outside Japan) should be positively promoted as one source of renewable energy, and support its development.
- However, when the special characteristics of biomass energy are considered, it must be used sustainably.
- Furthermore, each government policy related to the promotion of biomass energy should be carefully designed considering their sustainability, based on the latest scientific analysis.
- Moreover, the NGOs concerned with the promotion of sustainable use of biomass in Japan, have carefully examined the latest trends (both domestic and overseas), especially the latest trends in the EU, have held two Roundtable Stakeholder Meetings, have agreed the following three principles and issue this statement.

Principle 1: Biomass use should make a real contribution to greenhouse gas (GHG) reductions.

Principle 2: Biomass use should preserve the health of ecosystems.

Principle 3: Biomass use should pay due attention to economic and societal aspects.

- This statement has been developed in the context of the “Renewable Energy Special Measures Law (FIT System)” because a large impact is anticipated on the future use of biomass, and an appropriate design of the system is called for.
- In addition, similar considerations are expected to apply to the operation of the free market, or private sector activities in biomass unrelated to the FIT system.

- It is also recognised that, although it may take time to develop the recommended ideal policy, the FIT system is expected to continue for over 15 years, and thus the preferred system may be achieved by a step-by-step approach and accumulating experience.
- This statement is related to the use of solid biomass, and especially wood-based biomass.
- Biomass used in Japan may derive from within Japan or from imports, but the same principles should apply.

2. The Three Principles

(1) A real contribution to reducing GHG emissions

- The most important objective of biomass energy promotion is related to the climate change strategy of reducing greenhouse gas emissions. Accordingly, the FIT policy to promote the use of biomass energy must be designed in accordance with this objective.
- In the IPCC 4th Assessment, it is made clear that in order to avoid dangerous climate change by 2050, global greenhouse gas emissions should be drastically reduced within the next 20 to 30 years.
- Accordingly, the use of biomass energy must make a positive contribution to this reduction in greenhouse gases required to avoid dangerous climate change.

(Avoiding Carbon Debt)

- Where forests are felled for the purpose of supplying biomass for energy production, there is a large release of carbon from the ecosystem which may take from decades to over 100 years to re-absorb and fix through subsequent plant regrowth. In the 20-30 year time scale relevant for avoiding drastic climate change, there is thus a carbon ‘debt’ and it is thus difficult to regard biomass as ‘carbon-neutral’.

- Moreover, when calculating the GHG reductions associated with biomass use, it is necessary to include all stages from the initial stage of emissions associated with land use, through all stages of the supply chain, and include an estimate of such carbon debt. (Full Carbon Accounting approach).

(Contributing to GHG reductions at the global level)

- Biomass is already being exploited at the global scale; calculating the effect of biomass use on GHG emissions should not be limited to the national level but should consider the effect at the global level.
- In other words, in contrast with the current rules under the Kyoto Protocol, where the production and user countries are different, a complete LCA (across both countries) is necessary.

(Efficiency of energy use)

- The efficiency of biomass use over the supply and use chain (and thus the effectiveness of GHG reduction) is very different depending on the conversion technology used (specifically whether heat or electricity or cogeneration). This aspect should thus be considered.
- In addition, while normally over 80% efficiency can be achieved for heat use, electricity generation efficiency is only some few multiples of 10%; thus heat or cogeneration is recommended.

Recommended Items

- Where consideration is given to the contribution to GHG reductions, the following FIT system design and associated policies are recommended.
 - an appropriate method for calculating GHG reductions and a minimum standard for GHG reductions should be set. (In the EU, there are standards for a minimum reduction of 60% compared with coal)
 - Promotion of the use of residues and surplus biomass from current timber production without leading to change of land use. NB. It is recognised that

conversion of wasteland and abandoned farmland to biomass may be effective, but even with such uses, consideration must be given to the promotion of healthy ecosystems, and the economic and social contributions.

- The necessary energy in biomass transport should be considered (related to method, distance, etc.).
- Heat or cogeneration should be promoted
- Life-Cycle Analysis which allows Full Carbon Accounting should be developed and relevant data accumulated.

Figure: Biomass Value Chain

Land use (felling etc.)--- Production---Processing--
-Transport---Energy Conversion---Use (heat, electricity etc.)---Residues

(2) Promoting the Conservation and Use of Healthy Ecosystems

- The importance of biodiversity and ecosystem services is increasingly widely recognized. In Japan, the Biodiversity Convention has been ratified, the National Biodiversity Strategy has been introduced, and Japan is making an international contribution –e.g. via hosting the 2011 COP meeting in Nagoya.
- Accordingly, a basic factor to be observed in the use of biomass energy should be that biomass production should conserve healthy ecosystems and protect biodiversity.

(Confirming Legality)

- Whether domestic or overseas, the legality and compliance with related ordinances must be confirmed.
- Even in Japan, there is a problem of abandonment without replanting, so adequate checking is required.

(Protection of high-value ecosystems)

- High value and natural ecosystems, or ecosystems with high carbon storage should not be destroyed.

(Harmony with various ecosystem services)

- Use of ecosystems for providing materials or biomass for energy should be harmonised with pre-existing human uses of ecosystems, based on ecological knowledge.
- In order to avoid conflict with traditional societies which rely on ecosystem services for their livelihood, biomass production should involve local people and related stakeholders (not just the landowner or proposed user) in planning based on the principle of sharing all relevant information (Free Prior and Informed Consent - FPIC).
- It is fundamentally expected that there will be a positive contribution to the local economy, and to provide the foundation for this, the transparency and efficiency of the governance system and of businesses using ecosystem services should be improved.
- In Japan, problems in governance such as unauthorised felling and abandonment without replanting, together with high costs have led to Government policies such as the 2009 Forestry and Forestry Industry Revitalization Plan. The design of the biomass FIT system should be comprehensively linked with such policies.

Recommended Items

- With consideration given to protecting healthy ecosystems, the following FIT system design and associated policies are recommended.
- Note that these principles are common to those applying to the use of forests for timber production.
 - Confirmation of legality.
 - Use a process which is transparent for the harmonisation of biomass use with other ecosystem uses and ecosystem conservation, in land use and forestry management plans.
 - Ensure traceability in the supply chain to clearly establish the origin of the material supplied.
 - Encourage use of forest sustainability certification and its positive use.

(3) Economic and Social Contribution

- If biomass energy is to be used appropriately, it is expected that it should also contribute to the agriculture and forestry sector and to an appropriate energy mix for Japan.
- Especially since the FIT system is funded by Japanese society, an integrated approach is required to ensure that the operation of the FIT system contributes to local economic revitalisation and enhancement of energy security.

(Strengthening Governance)

(Preference for local and distributed use at small to medium scale)

- The basic philosophy in setting the purchase price under the FIT system should be cost-based and encourage distributed small to medium scale use; the electricity price should be related to the scale of generation.
- Also, since even at small scales, cogeneration is highly efficient, preferential measures should be established.
- As referenced in the main paper, under the German and UK systems for renewable energy, consideration should be given to a separate system of support for biomass heat.

Recommended Items

- From the economic and social considerations above, the conditions below are recommended for the design of the FIT system and related rules.
 - Establishing a purchase price according to scale and type of biomass use.
 - Bonus for cogeneration.
 - Ensure legality (as in Section 2).
 - Integration with forestry and forest industry policy.

Encouraging sustainability certification systems, and their positive application (as in Section 2).