Renewable energy issues in Japan from a biomass perspective

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1. Unable to give a model case

- The use of both woody biomass and biogas as sources of renewable energy have been trialled in Japan over the past ten years, but there have been hardly any success stories based on appropriate technology, appropriate capital cost and appropriate operational management.

2. Actual situation in the biogas field

- Actual biogas power generation has been thrown into the laps of plant manufacturers, without even any clear way for determining the size or specification of biogas. Plant manufacturers simply build the plant and hand it over.
- Moreover, the capital cost is more than 5 times that in Germany. A 300kW biogas facility costs ¥500 million (4 million euros).
- People who understand the technology have not been deployed to the plants. There are very few operators in Japan who understand what's really going on.

3. Woody biomass power generation that discards heat

- With the introduction of the FIT system last July, there has been widespread talk on the subject of woody biomass power generation. Amid the talk, there have also been many dubious stories. Most of these have been about 5-10MW power generation.
- Moreover, the focus has been on power generation: no thought has been given to heat utilization. The FIT has also been set high (¥32/kWh for forest-thinning waste), and the truth is that no one wants to think about troublesome heat utilization. Left unchanged, most of the valuable heat from biomass will be discarded.
- The use of renewable energy will primarily be based on adopting a system suited to the plant, with due consideration given to such factors as the needs of the plant and the resource situation. In reality, a common arrangement is for external capital to force whichever way is convenient for themselves onto the local community.

4. Use of woody biomass rising from the current forestry situation in Japan

- Most of Japan's forests were felled after WWII, leaving nothing but bare mountains. However, the subsequent reforestation resulted in the reestablishment of forests of which Japan can be proud before the whole world. At a current level of 6 billion m^3, Japan's stockpile of forests is on the way to becoming one of the world's leading natural resources. At the same time, though, since Japan has no experience in modern forestry, it must build up technology for thinning out these forests and using them in a rational manner. At present, Japan's road network is also underdeveloped, and the inefficient forestry machinery in use is based on construction machinery.
- Amid such circumstances, if a 5MW-plus power plant is constructed, the mountains could be cleared to generate power. This would contribute to neither the local economy nor the environment. It could be that the only ones getting anything out of it are the business operators.

5. Immature heat utilization

- It's hardly surprising that a fundamental use of woody biomass is heat utilization. However, in Japan, whenever anyone talks about energy, it's always electrical energy. Hardly any attention has been paid to heat utilization. The reality is that there are barely any appropriate examples in Japan of the heat utilization of biomass.

6. German message

- The presentation delivered by Alexander Krautz and Christiane Hennig at a FIT workshop one year ago provided appropriate advice for Japan as it headed down the path of renewable energy, but I wonder how many Japanese people have understood the substance of their presentation?
- We ought to take the summary of that presentation, and the following parts in particular, seriously.

■The bioenergy sector is very heterogen with many different sources, technologies and stakeholders

■ An excessive or insufficient support of individual plants can occur

■ The future of biomass use is a system integrated provision

  - Provision of system services – first pools of biogas plants in Germany provide positive and negative secondary balancing power
  - The introduction of co-incineration in Germany would destroy the established market for solid biomass and will hinder the move towards alternative energies (high emissions of coal)

The above is not limited to biomass. The same could be said for all renewable energy.