Renewables and sustainable development

Fairly recently, the Chinese govenment laid out out its next five-year plan in which there was a strong accent on the expansion of renewable sources of energy as a component of the overall Chinese requirement for power supply in the years ahead.

This was not at the expense of more conventional sources of production, since maintaining the development of the economy sensibly remains paramount to sustain growth and help emancipate the many millions still on the fringes of the Chinese "miracle."

Rather, this is a totally pragmatic view of balancing growth and the need for the country to play its part in producing cleaner energy without being hidebound by flawed international targets. It is also a realization that the use of its immense population base, with training, could become arguably the largest global production base for various renewable energy equipment and the promoted application of developmental research from within or without the country.

The benefit to the economy, whether from internal use or for export, could be very significant, as other countries wrestle with their own desires and targets, often amid frustrating bureaucratic strictures and with no way forward.

While wind power, within the allowable working range of wind units, can only be limited to certain areas of the world where significant and sustainable levels of wind are to be found, such as the Mongolian steppes, it is this which has driven the push in China to become a growing center for wind power. Overall the contribution of wind power to world energy demand, however, is never going to be more than peripheral.

More interesting is the Chinese commitment to solar energy, in terms of both production using today's technology and the huge interest in working towards next generation developments, along with research that is taking place in both Europe and the US.

Again still at early stages of application and needing a much greater push are the output of energy from general and bio waste. These offer opportunities of sustainable development from the bottom up, as Chinese farmers, for instance, are being encouraged to do with animal waste, compared with large energy production units, as for mainstream coal and gas, which require a top-down approach with attendant transmission grid links.

In Indonesia there are impressive reserves of both conventional and

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renewable energy sources, and the country should not be troubled for meeting demands for many years into the future. But much still remains to be done to secure a safe level of reserve over demand, a level which is well below an acceptable norm. The rate at which government-driven conventional fossil-based power is developing remains slow.

However, there is also no doubt that Indonesia can establish a healthy proportion of its power requirement from renewable energy. Enjoying 40% of the world's geothermal resources, it should be looking to see an acceleration in the government's development program in this area from the relatively pedestrian commitment of the past.

While this, along with main hydro and large coal-fired production, has to be developed from a top-down government-driven approach, the distribution of population across the country, concomitant with the nature of much renewable power, is such that it is appropriate that many local requirements off-Java and other major population centers be addressed more locally with renewable solutions.

Alternatives and their limitations

Various solutions can be taken, from a choice of mini- or micro-hydro (especially from run-of-river sources) solar, biomass and waste to energy, and a whole range of projects around the country are being discussed.

While the government has set targets for using biofuels as partial replacement for conventional oil-based output, and these have entered the market successfully, there will always be a question of conflict of use, whether for food or providing fuel. There is also the other conflict between preserving forest or clearing it for palm oil, some of which is done without due care to other environmental considerations.

One of the problems for application of regional renewable solutions relates to the proper understanding at local government level, whether administrative or legislative, of how best to deliver a particular renewable solution. Another main problem relates to the lack of funding applied to development to bring a project to fruition.

There is much to do and a whole range of areas of energy supply to be explored further and developed, not just for the Java heartland but for the many communities across the country.

There is also the problem of some enterprising local government making laudable efforts to do something and coming up with locally-prepared business proposals. Unfortunately these, while well-meant, are usually flawed from a bankability point of view and budgets are not made available to correct this, or the need for action drifts. There is a need here for practical educational support.

A potentially fruitful avenue for regional communities is to deal with these communities directly, or more specifically ones that would be interested in harnessing any micro-hydro, waste or solar sources to generate a small amount of power to meet community requirements either totally or partially. While there are a few success stories, these are not enough.

It would seem also like an opportunity to exercise the potential of micro-financing as a means of assisting such communities to follow through on one or more of these renewable opportunities. As well as there being one or two commercial bodies interested in micro-finance there is also potential support from experts at universities, such as IPB (The Institute of Agriculture at Bogor).

As mentioned above, China is setting out to be a large manufacturer of pieces of kit to support renewable energy development. It does not seem unreasonable that Indonesia should also enter this field, carefully selecting elements that make sense for its market requirements.

The underpinning and growing argument for a wide-ranging energy policy in many developed countries is energy security. In Indonesia's case, the country is well blessed with huge potential energy resources and thus has a choice of approaches, although a given solution usually presents itself for a specific situation.

In recent times, the drive to construct a first nuclear power plant has been getting an increasing airing, obviously with the plant to be located in an area well removed from the Ring of Fire. Properly built and managed, nuclear power is perfectly safe – with an emphasis on the word "managed." The question that has to be thoroughly examined is whether this clean form of energy is really required as a contribution towards Indonesia's overall future energy portfolio.

There is much to do and a whole range of areas of energy supply to be explored further and developed, not just for the Java heartland but for the many communities across the country, so that while they are contributing to the growth of the nation, they are also benefiting themselves.

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