

## Biohub Workshop Summary

Armidale Feb 13<sup>th</sup> 2014

- Waste is growing at 7% pa and despite recycling efforts around 50% ends up in landfill;
- A Biohub can achieve greater than 90% diversion from landfill;
- The Biohub concept is about extracting the maximum value from each waste stream, though this may not occur immediately – (May need to start with lower value products, then progress to higher value)
- Bioenergy from biomass is not the top cash flow item – it is what is left over after you separate out and process other higher value products from the waste stream;
- The bioenergy market cannot afford to pay for purpose-grown biomass;
- The Biohub concept is not something councils would go alone. It will take a collaborative effort between councils, other waste generators, the community and end-market purchasers (e.g. in Dubbo, local farmers are driving the opportunity as they are purchasers of biochar for fertilizer);
- The Dubbo Biohub concept relies on municipal waste (50,000t) as its regular primary feedstock stream, which then generates the potential to utilise other seasonal and occasional agricultural and forestry residues;
- A biochar product has already been produced which can be used through an airseeder and competes price-wise with existing fertilizers in the Dubbo area;
- Businesses working under the Sustainability Advantage Program, which involves recycling, reducing waste, sharing waste streams (one businesses waste is another's raw material), tracking inventories etc. have seen a return on their investment in less than 18 mths. 100 companies saved \$33M between them;
- State Governments are sending the message (via landfill levies) that landfill is the least desirable option. Some councils are getting on the front foot and imposing their own landfill levies, so retaining the money themselves rather than losing it to state governments;
- Landfill levies provide the 'headroom' for recyclers to enter the market – so long as the recycling (or Biohub) gate fee plus transport cost is less than the landfill gate fee plus transport cost, materials will be diverted from landfill;
- Organic waste is the big ticket item – this is where most of the opportunity is for sorting and recycling and producing saleable products. They are the low hanging fruit, the next least costly to sort and recycle;

- Currently, all recycling is subsidised except for metals and cardboard which have sufficiently developed markets that they pay for themselves (generate a profit);
- Transport costs are typically \$20-30/t;
- The economics of a Biohub concept is currently unclear – it needs further investigation. Likewise for an AWT (a waste separating machine);
- There are no commercially feasible waste-to-energy (pyrolysis) plants operating in Australia yet;
- ADC currently makes money out of turning green waste into compost/mulch;
- Biochar has the capacity to boost crop productivity, but the results are mixed and depend on the type of biochar, type of crop and soil type;
- Some biochar production actually results in net carbon emissions, so care is needed;
- Reduction in NO<sub>2</sub> emissions may be a major greenhouse gas benefit from applying biochar to soils.