

## Towards a zero waste model for Australia

Waste represents a profound design failure in our society. Failing to create materials and products that can be safely reused, recycled or composted is leaving a legacy of waste – a burden for future generations to carry.

At this time in our history when we are moving away from a fossil fuel based economy driven by profound and impending climate change impacts, ecological sustainability must come to the fore. Waste is essentially the front end of the Circular Economy model as we strive to account for the full costs of our consumptive lifestyles and the services and goods we have come to rely on. History has shown that the marketplace has not always served society well and requires strong signals from government and civil society to ensure that our values and goals are reflected within our economic systems. Currently, the rules governing the marketplace favour a one-way flow of materials from the extractor or harvester of virgin resources, to the producer, to the consumer, to the landfill or incinerator. If we want to create a sustainable resource recovery strategy that will achieve the goal of 'zero waste' and move us closer to a Circular Economy model, then we have to alter the rules to create a marketplace in which resource conservation and waste reduction are rewarded and wasting (disposal ie landfill and incineration) becomes economically painful and socially frowned upon.

A zero waste model for Australia will require the support of National, State and local governments. To succeed, accurate price signals are required to be set by government so that waste prevention, reuse, recycling and composting industries are able to out compete the disposal, end of pipe options such as landfill and incineration technologies.

Currently, consumers do not pay for the true costs that are imposed on the environment and public health for the products we purchase. Landfill prices do not reflect the costs of landfill maintenance beyond 30 years and the fees we pay for waste disposal services do not account for most environmental and social costs imposed by disposal technologies such as landfills and incinerators.

A level economic playing field to promote a circular economy

- Change the tax system to support the environmentally benign goods and systems and shift the tax to resource depletion, wasteful and polluting activities.
- End federal and state subsidies for virgin materials extraction, processing, and manufacturing
- Do not provide credits or subsidies for thermal energy recovery waste technologies.
- Identify and implement mechanisms that internalize environmental and social costs into market prices (ie disposal costs)
- Promote full-cost accounting techniques for evaluating discard management options that take into account remediation, contingent, environmental, and social costs.
- Promote full-value accounting techniques. Full-value accounting should account for the value captured by the local and state economy, such as

recycling job and business creation, local community development, and diversified economies

## **Extended producer responsibility**

Fundamental whole of government policy support for Extended Producer Responsibility is an essential component for any National Ecologically Sustainable Resource Recovery Strategy. Extended Producer Responsibility (EPR), based on the “polluter pays” principle, entails making manufacturers responsible for the entire lifecycle of the products and packaging they produce, from cradle to grave – or preferably, from cradle to cradle. EPR provides the missing link between product design and recycling – a link that is the key to making zero waste efficient and economical. Taking the onus off our local and regional governments for the disposal of brand products and packaging will reduce waste to landfill, increase and improve recycling and ensures that the potential for a ‘cradle to cradle’ approach underpins corporate responsibility and enhances better choices and responsibilities for the consumer. EPR leaves local and regional councils free to focus on the organic compostable section of the MSW reducing costs to ratepayers and delivering better environmental and public health outcomes.

## **Source separation**

Source separation is the key to an effective and sustainable waste management. Contamination of the waste stream is the greatest impediment to clean marketable compost and successful recycling practices. When waste streams are contaminated through ineffective and damaging collection systems, the goal of clean marketable compost and increased recycling rates will be undermined. Glass breakage and contamination of the waste stream accounts for a large portion of recyclables and organics requiring landfill.

Investment in improved waste collection services that can provide uncontaminated waste streams to the recycling and composting industries is one of the greatest investments local and regional governments can make towards diverting waste from landfill and supporting the recycling and composting sectors. The benefits of Materials Recovery Facilities (MRF) that rely on Mechanical Biological Treatment technologies (MBT’s) compared to manual source separation requires in depth consideration in terms of the long term environmental and social benefits that could be attained through supporting human scaled enterprises ahead of large scale engineered solutions.

Ideally four bins would provide the best source separation for those jurisdictions using curb side collection.

1. organics,
2. paper,
3. recyclables(glass/cans)
4. residuals

## **Container Deposit Legislation**

Container Deposit Schemes are used around the world and contribute to the increased recycling of beverage containers. Plastic beverage containers contribute to the pollution of the environment, water ways and oceans risking the marine ecosystems and marine life. There is broad support in the Australian community for a National Container Deposit Scheme.

## **Resource recovery parks**

Resource recovery parks provide a model for reuse, recycling and composting initiatives that are housed in one location and already operate in many jurisdictions around Australia. All over the world various models of resource recovery parks provide citizens with goods and materials at prices well below retail. There are real social investments for society through jobs in this sector, cheap goods and materials for low income consumers and charitable organisations.

Such parks can also produce saleable compost (depending on the integrity of source separation), vermiculture products, construction materials particularly hard woods like jarrah which can go on to provide very long term uses in the building industry. These components of a Resource Recovery Park could divert more than 80% of waste from landfill and provide the blueprint for an ecologically sustainable resource recovery strategy for Australia without thermal waste to energy technologies.

## **Composting**

Aerobic composting to produce clean and marketable compost provides the most beneficial environmental use of the organic fraction of MSW. Mixed MSW compost is **not** acceptable as it produces contaminated compost contributing to the pollution of the environment, particularly the agricultural sector. Sustainable organic farming and agriculture can be supported immensely through the use of clean compost. Local governments who are free to focus on this aspect of the waste stream instead of dealing with the brand products and packaging waste stream could create real local and regional financial investments in providing a clean safe compost product.

## **Worm farms/vermiculture**

Food waste is a significant part of our society's waste stream. After food-banks and other charities have taken the viable food waste for reuse there is still a significant volume of food-waste that goes to landfill. This waste could produce good quality worm castings and worm juice as a reliable and safe fertiliser for domestic and agricultural food production. The carbon embedded in this waste is more reliably sequestered back into the environment providing a great source of soil nutrition and carbon sequestration.

## **A recycle tip shop/facility**

The community love verge collection days as it provides a great source of free accessible goods that would otherwise go to landfill. Instead of filling our landfill with

large goods often containing toxic components, these used goods could provide a valuable community resource especially for lower income earners who need essential appliances and cannot afford new ones. Local governments could make considerable revenue and provide a strong social investment in their community by providing green jobs repairing and upgrading white goods, furniture, and other household items. Goods not able to be reused could be diverted to recycling facilities for parts and materials.

## **Reuse and recycling of building materials (C&D waste)**

There is great opportunity in the area of reusing and recycling Construction and Demolition wastes. Some states in Australia are already well advanced in this sector. Wood especially jarrah can provide valuable lower cost building materials and provide for significant value added uses. Serious consideration must be given to ensuring that toxics are not recycled back into products and unintended uses. For example asbestos, batteries, brominated flame retardants, CCA, and any Persistent Organic Pollutants (POP's) Looking forward we really need this industry sector to become the Deconstruction industry that supports the safe reuse and recycling of building materials giving value to these materials and the embedded energy they contain and ensuring their use is available to future generations.

## **A community science-based research centre to investigate solutions for residual wastes**

The residual fraction of our MSW can be up to 30%. Better source separation and collection of recyclable wastes can reduce this percentage to as low as 10%, particularly glass and paper. Even so the problematic issue of non-recyclable plastics which account for the majority of residual waste requires us to take a close look at this waste stream. Hiding this waste by disposing of it either to landfill or an incinerator does not help us to resolve this problem. It is at this point that we need to engage our scientists, researchers and academia to understand where this waste is coming from and options that we could develop to reduce and ultimately eliminate this waste. One way to do this could be to establish a community based, scientific research centre to investigate solutions for residual waste at the resource recovery park where these wastes are located. This location provides an appropriate context for full life cycle considerations of all MSW and will help to continually improve resource recovery methods through research including better industrial design.

## **Temporary sealed containment cell for 'treated' residual wastes**

Until such a time that Resource Recovery Parks operate effectively to divert the majority of our MSW and C&D waste from landfill, the temporary containment of residual wastes will be required. Such a containment cell which would be significantly smaller than standard landfills or incinerator ash disposal sites, could provide a safe secure storage of residual material that could later be accessed for treatment or uses until these problematic wastes are ultimately designed out of our society

