6G: THE LANDCARE-WASTE MANAGEMENT NEXUS: POVERTY AND PESTILENCE–PACKAGING AND PROFIT

Gerard Gillespie

An overview

There is a nexus between waste management and soil management, landfill and Landcare. The nexus is that part of the solution to both problems has a common source. - The soil.

We can have pollution, desertification, contamination and waste or we can have employment, good food, clean air and health.

The cost will be about the same.

Developments in the waste management industry

The past five years have seen remarkable changes in the waste management industry, to the point where it is becoming common practice to refer to the development of new waste management programs as ‘resource management’ strategies. Unless programs contain a strong element of resource recovery they are considered to be immature and ill-conceived.

This was highlighted in our own region when the ACT Government became the first local authority in the world to release a strategy with the title "No Waste by 2010". At the time the target was considered foolish and politically naive in waste industry circles. Since that time the ACT has reached a point where it now recycles 66% of its waste stream and in the process has created 200 new employment positions in the Canberra community.

The Canberra community’s brave move has now been followed by many other local government authorities in various parts of the world.

In New Zealand, the Tindall Foundation established the Zero Waste New Zealand Trust the year after Canberra's document was released. Stimulating interest in the use of wastes as resources, the Trust now has 32 councils registered on its books as Local Authorities with a Zero Waste focus.

There are three Zero Waste organisations in the United States which are pushing to establish a national Zero Waste program. The Lord Mayor of London, Ken Livingstone, is seeking advice on the establishment of a Zero Waste agency, and a local recycling forum in Medway has just set its policy in a Zero Waste direction. The Minister for the Environment in the Blair Government, Michael Meacher, is expanding his range of advisors to include expertise in resource recovery.

This rapid shift in government thinking reflects a community awareness of the frightening impact we, as a species, are having on our environment.

The industrial revolution has brought us to a point where in excess of 90% of our production efforts return only waste. Of the goods manufactured and grown in this process, around 80% is buried in landfill within 6 months of production.

A race to the bottom

Around 60% of all the materials we put into landfill is organic and a very large part of this has come from our own national farming processes. Farming is a mineral extractive industry which progressively removes from the soil not only the organic fraction but also minerals and trace elements. All of this material is either exported or carried into the cities where it is processed through people and, passing through a waste management system, ends up in either our landfill or our sewage treatment works.

Plants cannot make minerals and trace elements and these important structures in healthy plant growth are not put into our soils through the application of fertiliser.

The process of degradation of our soils costs us many millions of dollars per year as a nation. At the same time one of the factors in this degradation, chemical fertiliser, is constantly rising in cost, both to the farmer and to the broader community. Our national fertiliser bill at the farm gate every year is in excess of $4 billion.

Over the past ten years, government has attempted to address some of the soil and water issues through a variety of means such as Landcare. While the work of Landcare has been enormous in its scope and brilliant in its execution, at every turn the initiative is soundly defeated by the size of the problem and the vastness of the country.

Currently much of this work relies for funding directly from Government budgets or on the sale of utilities such as Telstra. As a funding effort it provides large quantities of resources, but on a National basis it barely touches the sides.

Landcare as an entity needs an ongoing funding source, which provides it with an ongoing income, which will be there for the duration of the problem. It needs an income which comes from the provision of a service. An income which is business-based - a business which can last forever.

That business is waste management - or to be more precise, waste reduction. The focus of this new business would be the diversion of waste from landfill to farming.

From landfill to Landcare

Landfill in all its forms has become one of the largest long-term problems facing urban society today. It steals our space, devalues our property, threatens our waterways and contaminates the future. It is the graveyard of sustainability and it compromises the very survival of future generations.

At the same time, the other end of the process, farming, depletes our soil, pollutes our waterways, and increases our foreign debt.

Depletion of soil quality is a problem which hits the headlines in newspapers all around the world, almost every day. A recent science report in Britain stated that in excess of 30% of farm soils in the UK were deficient in organic material.

Yet the greatest contaminant in landfill is organic material. It is organic material which leaches through the landfill to create further problems of contamination and pollution.

If this organic material could be returned to the food chain we could eliminate forever the problems of landfill, create local employment programs and go some way to relieving the destruction of our soils through the overuse of chemical fertiliser and unsustainable farming practices.

There is a constant cry from composters that there is no market for their products. At the same time our soils cry out for the application of the organic materials, micronutrients and the microbial activity which is compacted into our landfills every day.

We need a national program which is focussed on the removal of organic materials from the waste stream and the processing of this material into a viable, balanced organic product for use on farms.

In favour of the farmer

There is not a farmer in this world who wishes to leave his/her children acres of desolation and destruction. But the farmer has no choice in our current industrialised system of agriculture. The farmer is the keeper of the nation's soil. It is farmers' activities which will determine the long-term sustainability of our agricultural base.

It should not be expected that farmers, whose lands are vulnerable to flood, famine, fire and drought should be driven to using methods which keep up production, while destroying the soil. Yet they seem to have no choice. Who will pay the farmers', mortgage while they change to more 'organic' practices?

Who will provide the financial breathing space to allow for the luxury of change? Who can provide farmers with a viable, productive alternative to the constant use of chemical fertilisers?

Landcare can.

True landfill costs

In most urban societies around the world, the cost of landfill is skyrocketing. Yet landfill fees only cover a small part of the cost of landfill. The true costs of landfill when all burial, amenity, administration, security, replacement and on-costs are included is in most cases at least three times the cost charged at the gate.

Even in small unattended country landfills, when all costs are included, the price is often around $50 to $70 per tonne.

If these funds were redirected this money could be used for the processing of our organic materials into a compost suitable or even designed for specific farm use. In most instances the cost of this process would be far less than the current cost of landfill.

It would have the additional added benefits of reducing the fertiliser bill for local farmers, increasing the organic levels in the soil, raising the microbial density of the soil and at the same time, the ability to produce quality products.

Once organic material is removed and used in this way, all other products in our waste streams become available for reuse. The 1% of hazardous waste in any stream of material could be removed before it becomes a problem and the remaining inert wastes and

packaging used in local industrial processes or, when sufficient material becomes available, transported off to National markets.

But other changes in the packaging industry could bring even larger benefits to the Landcare/ Waste Management nexus.

Packaging for community profit

As the humble brown paper bag taught us many years ago, packaging does not need to be complex in its makeup to be effective and indeed even when it is complex it does not need to be antisocial.

It can be designed to be recycled to paper or recycled to compost, depending on its clean or contaminated state. This, combined with the major corporate commitments to the development of safe biodegradable plastics, will see us growing increasing quantities of our compostable or recyclable packaging within the coming years.

As was seen in the recent Sydney Olympics, it is possible to make safe, functional packaging out of materials which can be cleanly composted back to a soil-enhancing product. This product is then capable of going back to the agriculture which, in turn, is growing the materials to make more packaging.

The last year has seen massive corporate commitments and investment in bio-materials, that is materials which can be readily composted or bio-recycled following their use in the community.

Eastman, BASF, Mitsubshi, Cargill Dow, Toyota, ADM and Dupont have all recognised the need to change. Other companies such as Ford, 3M, Daimler, Chrysler, Proctor & Gamble, Fujitsu, NTT and Sony have either made or expanded their commitment to the adoption and use of biodegradable plastics in their product lines.

This type of product, having carried its packaged contents to a rural centre can then be composted for the benefit of the local community – to create local jobs, to regenerate local soils and to grow local crops – all the while supporting Landcare and its local projects.

Conclusion

There is a nexus between waste management and soil management, landfill and Landcare.

The nexus is that part of the solution to both problems has a common source. - The soil.

We can have pollution, desertification, contamination and waste or we can have employment, good food, clean air and health.

The cost will be about the same.

Discussion notes

- Recycling is seen as one of the great saviours of the world, and yet a lot of recycling processes of non-organic materials (such as glass) are very energy-intensive. This is

true only if the product is sent a long distance for the process. It also depends on what one makes the product into. There are many new technologies, some of them low tech, which enable the re-use of materials locally, to create local employment

- There are many opportunities in our modern throw-away world to re-use rather than to recycle. The traditional shopping bag or cardboard box are once-familiar examples of this, and even the ubiquitous plastic bags can be used several times, as an alternative to new ones gratuitously handed out at check-outs. There can be financial disincentives to waste creation, such as having to pay for plastic bags, or receiving payment for returned beer bottles and cans, as in South Australia and several European countries. For those of a radical turn of mind, products purchased at department stores may be unpacked after purchase , and the large amount of packaging materials dumped at the counter for disposal!
- Reduction of waste creation is clearly more difficult in affluent societies with a production-consumption-waste creation ethic than in several developing countries. It is a sad reflection on human inequalities that the survival of many families depends on scavenging food and materials from rubbish tips in some of these countries
- Reduction of waste in modern affluent societies may require the same kind of cultural change which is needed to persuade people to use public transport rather than private cars, thereby saving fossil fuels. These changes can be made under conditions of resource deprivation such as in times of warfare, but are unlikely in cultures where waste creation is endemic to economic growth
- In regard to the re-use of organic materials, the principal argument is that we should be returning every piece of organic material we can get hold of to the soils in our farmlands. We have some of the worst soil conditions in the world and yet we have some governments spending money on burning organic wastes or putting them through processes such as pyrolysis to create energy. This raises a rhetorical question "What is the point in creating more electricity to toast our bread when we won't have the soil to grow the grain?"
- Historically there are some examples whereby organic wastes can be converted into energy-rich materials and used for transport. During the second world war in Britain, an eccentric Cambridge scientist set an example by converting his car to gas, so that methane recovered from chook manure could be used to fuel his trips to London. More recently, methane recovered from Queanbeyan abattoirs was used to drive its delivery trucks, and organic gases have been harvested from the Canberra tip for years, and used as a valuable energy source. There may also be a future for converting organic materials from sugar cane into alcohol for transport use, rather than burning them off
- Potentially one of the most prolific sources of materials recycling is human sewage. Currently the products of human metabolism, as many tons of phosphates, nitrates, potassium etc., which flow daily into rivers and the sea, could be treated and harvested as fertiliser and water for use in re-forestation programs and agriculture. Much energy is wasted in pumping sewage to centralised sewage treatment plants instead of treating it locally (as in a Cranos System proposed for Canberra). Griffith (NSW) Council have devised a reticulated system for growing vegetables from treated sewage, as has been done in some urban areas in Denmark. Maybe we should start thinking of sewage as a resource rather than as a waste?

Further reading

Compost, Alwin Seiffert
Hands-on Agronomy, Neal Kinsey
The Albrecht Papers (four volumes), William Albrecht
An Agricultural Testament, Sir Albert Howard