THE WASTE MANAGEMENT INDUSTRY IN THE NEXT MILLENNIUM

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EXECUTIVE SUMMARY

Progressively the waste management industry must come to see itself as a resources management industry if it is to have a sustainable life well into the new millennium. Historically, the industry has been working in the down-stream end of the resources cycle: processing, recycling and disposing of wastes. The challenge for the future is to move into the up-stream resource management areas of minimising wastes, cleaner production and optimising resource utilisation.

For waste management companies there will be two key outcomes. Firstly, those companies that do not embrace this broadening of their skill and market base, will become marginalised and confined to collection, recycling and disposal activities, in markets where service providers are differentiated by price alone. Conversely, those companies that do make the shift to widen their services, will find they have growing markets in resources management within client companies and that increasingly their services will become less price competitive and more service value competitive.

The drivers that are already apparent in the markets and that are shaping the future for the waste management industry include environmental, regulatory, social and economic aspects. These are demanding a shift in the positioning of the industry. Review of the drivers clearly identifies the threats that face the industry if change is not embraced.

As industry changes, so governments change in the ways in which they regulate industry. For the laggard waste generators, regulators are forced to use command and control approaches to achieve their environmental ends. However, for the more enlightened companies, the regulators are increasingly turning to self-regulation and market based economic incentives as the lever for achieving environmental outcomes.

For the waste management sector, it is critical to understand the stages of evolution in the regulatory relationship between government and industry at large. At each stage of development of the inter-relationship, different opportunities will be presented to waste managers, and new gaps are opened in the service needs of clients. The opportunities with the laggards lie in improving their environmental performance, while the opportunities with the leaders lie in the areas of in-plant process management, cleaner production and improved resource utilisation efficiency. In this latter situation, there is a significant market gap being created, with no clear service sector taking up the challenge. The waste management industry is strategically placed to step into the gaps that are being created.

A waste management industry which broadens its stake in the market to become a resources manager will be a fully effective tool for government in their thrust for sustainable development. Governments are fundamentally concerned with enhanced management of our

rapidly depleting resource base and reducing the impacts of wastes and discharges on the receiving environment. As resource managers, the new breed of waste manager takes up the challenges of reducing consumption. This will be driven by an internal commercial objective and self-interest and stimulated by shifts in market expectations.

As such the reformed industry not only has a future well into the 21 century, but also becomes a key ally of government in their efforts to reform industry at large.

KEY WORDS

Eco-efficiency; triple bottom line; resource utilisation; waste management; sustainable development.

INTRODUCTION

The formalised management of wastes in our communities started as an essential service for the purposes of sanitation and public health. Whilst health and sanitation remain important criteria today, the main drivers of this industry have changed. Underlying the present and future demands on the industry will be the rapid expansion in urban populations and the associated resources consumption by those populations. There is clear evidence that the current rate of consumption of resources is not sustainable and means must be found to reduce this pressure on the ecosystem.

The waste management industry is the first sector to see and handle the discards and unwanted resources of industry and the community. In the process of managing those wasted resources, opportunities become apparent for recycling, reuse and resource recovery – all implemented by waste management companies. These initiatives reduce the final amount of waste for disposal and re-introduce resources into the productive economy.

However, these efforts are close to end-of-pipe approaches and are not sufficient to redress the resource depletion situation alone. With the knowledge of the quantities and qualities of waste produced by various enterprises, the waste management sector is uniquely placed to work with waste generators to reduce their wastes in-process or at source. This achieves more sustainable resource utilisation efficiency improvements and brings the waste management industry into the value adding service area of cleaner production.

FORCES FOR CHANGE

The forces that will shape the waste management industry in the immediate and near term future are briefly discussed below under the headings of environment, society and economy. While this discussion relates primarily to Australia, similar circumstances purtain in other countries, and the needs and opportunities are perhaps even greater in many neighbouring Pacific Rim countries.

Environment

The key drivers in this sector are the rate of resource consumption, and the impacts on the environment of waste management - collection, processing and disposal.

Resources - traditionally resource consumption has been linked with economic growth, and the conservative view has been that if we reduce consumption then we will have a negative impact on economic performance. This position is now known to be incorrect, and it is widely recognised that the target with respect to resources lies in the efficiency of resource utilisation. To achieve growth and reduced consumption of resources we need to "do more with less". This is the clear message of the Factor IV and Factor X initiatives: international drives to see resource utilisation efficiency increased by factors of four and ten respectively. It is an underlying tenet of eco-efficiency principles, and it is the foundation of cleaner production.

Thus there is an increasing trend and on-going pressure to manage our resources better, before, during and after production.

Waste Management - the majority of waste management activities have significant potential to impact on the environment. These environmental impacts have been the reason for increasingly stringent performance regulations on waste management activities and historically have been the reason for the relatively poor reputation of the industry in the eyes of both regulators and community.

With waste reduction initiatives and higher levels of resource recovery, the nature of residuals for disposal will change continuously. This will require matching changes from the industry in the technologies and processes employed to manage those residuals. The pressures on handling facilities will increase rather than decrease and the industry will be called upon for increasing levels of sophistication and high performance outcomes.

Society

The key drivers in this sector are population growth, perceived impacts of waste management activities, growing awareness of “right to know”, and wide spread introduction of extended producer responsibility initiatives.

Population - Australia can expect continuing growth in specific regions, continued immigration, and continued urban population density growth. In world terms these are not significant, but within regions of Australia they will accelerate the prosperity of the country and the pressures for improved resource management initiatives in high-density areas.

Perceived Impacts - community demands for improved local amenity have heightened concerns about the location of many industrial facilities relative to living and recreational areas. Waste management facilities have been foremost in this target group, based primarily on historical performances. As a result, it is no longer sufficient to have "the safest and best" technology and system. Instead, it is now essential to have strong community support for proposed systems and facilities.

Right to Know - the demands for community participation in planning and siting of facilities are coupled with a growing acceptance of right to know privileges on the part of the community. Companies interfacing with the community must make available all relevant information, implement transparent processes and move to work in an inclusive fashion with their stakeholder communities.

Producer Responsibility - industry is also responding to community pressures and is progressively taking up the principles of extended producer responsibility. The wider stakeholder communities will become parties to these moves. Suppliers will be called upon to improve their services and products, and consumers will be required to participate in the recovery of products. Many of these activities will lie outside of the core business areas for the product manufacturers and many of the activities will overlap with current functions and activities of the waste management sector.

Economy

For the waste management sector, the key drivers in this sector are moves towards smaller government, higher disposal costs, and financial tools of regulation.

Smaller Government - as governments retreat to the provision of the core services of government, there will be greater demand for private capital and private involvement in the delivery of utility services. With amalgamation of councils and the formation of regions, which transcend local government boundaries, this process will continue.

In the provision of infrastructure such as transfer stations, materials recovery facilities, processing plants and landfills, progressively governments are commissioning private sector capital to finance and operate these facilities, and requiring higher levels of planning, community relations management and overall facility management on the part of the private sector.

Disposal Costs - for waste generators, the cost of waste disposal is increasing at a rate which is significantly faster than the underlying inflation factor, and this is not expected to slow in the foreseeable future. Pressures on disposal costs arise from more stringent regulation on the handling and management of wastes and through levies imposed by government as a disincentive to waste generators. As the cost of waste disposal increases, waste volumes should diminish and options for processing or disposal should increase.

Regulatory Instruments - to encourage greater reductions in waste volumes, governments are using a mix of regulatory instruments which collectively increase the economic pressures on waste generators, and in turn inject more funds into the waste management industry.

The imposition of bans on landfilling of nominated wastes stimulates market demands for alternative processing and disposal options. Equally, levies on disposal create financial “back-pressure” on generators and inject additional funds into the market.

THE ENVIRONMENT FOR CHANGE

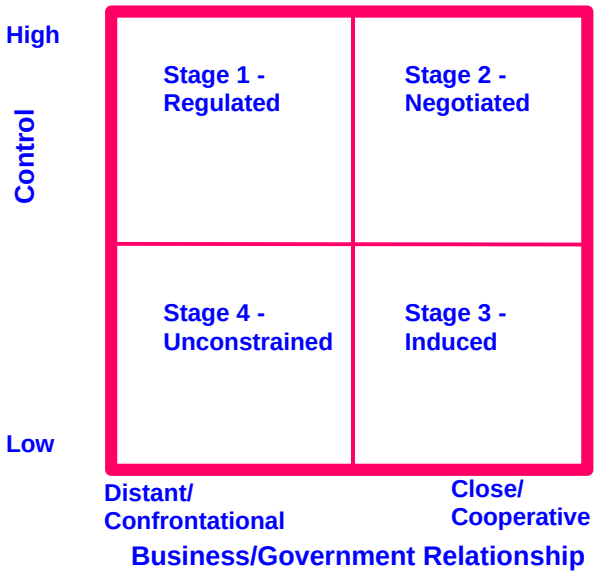
Both industry and governments are involved in a continuing process of evolution that sees the interaction between the two changing as each party changes. Through an understanding of the path of the evolutionary process it is possible to put into perspective what is happening today, why it is happening and what may lie ahead.

Four stages of evolution have been identified and a model created into which can be fitted the concepts of cleaner production, eco-efficiency, and ESD. The four stages are discussed below, while Figure 1 – Pathways of Evolution, shows the four stages in diagrammatic form.

Stage 1 - Regulated

Industry operates with a strong single focus on financial profit. All measures of corporate performance are converted to dollars, and performance time frames are measured in months.

Figure 1 - Pathways of Evolution (1)



Traditional economic theories dominate industry and governments alike. Corporate mentality involves minimum tolerance of regulation, and maximum opportunistic endeavours to outsmart regulators.

Governments representing the whole community need industry to succeed as it is the companies that generate the wealth of the society, employ the people and pay taxes to permit governments to function. At the same time as being supportive of industry, governments also represent the interests of the community and thus must act to stem destruction of the environment and the fabric of society.

The regulatory framework is command and control based. Companies are regulated with permits and emission limits. There are broad ambient standards set, prescriptive licences are issued and there is very little room for flexibility.

Stage 2 - Negotiated

Industry becomes aware that it makes sense to work smarter. Working smarter generates more wealth, in the process the company reduces costs and increases efficiencies. Labour is reduced, multi-skilling is introduced, less product is rejected at the factory and by customers, and in-process wastes are reduced.

Government is encouraged by this "enlightenment" of industry, and commences to introduce support programs that help industry to work smarter. Quality programs and cleaner production are delivered by government in a genuine effort to help industry become more competitive in markets.

The regulatory framework is very collaborative. Governments want to help industry help itself, and at the same time manage the environmental amenity of the immediate community. Agreements are negotiated and entered into on a voluntary basis by industry. Framework regulations and covenants are implemented and regulations are performance based.

Stage 3 - Induced

Industry starts to see the benefits of working more effectively with the resources it uses. There are better profits and things appear to be going smoother. Simple cost cutting is no longer the first target to improve efficiency, as companies move to increase resource

utilisation efficiency. Eco-efficiency is an approach that company executives can relate to, because they can measure it, and from which the company can derive value. This could be the proverbial "win-win" situation, and industry moves beyond a compliance mentality.

Governments respond by creating financial incentives. These cost the government less than support programs or command and control regulation policing. There are financial "carrots" created to stimulate the high achievers. The governments achieve their environmental objectives from other people's money. The cost of compliance goes down, the level of compliance goes up, and the amount of pollution loading goes down.

The regulatory framework is structured so that astute performers can make more money by being even smarter and better environmental performers. Load based licensing is converted rapidly into a permit trading regime, smart tax offsets are introduced and green energy drives and finances a plethora of different agenda.

Stage 4 - Unconstrained

Industry recognises that it is really dealing with more than just financial capital. Human capital and ecological capital are recognised and valued. Companies begin to understand the power behind ecological sustainable development (ESD) thinking and behaviour. The leaders move beyond the regulatory frameworks of governments. Sustainability for the business appears as a real possible future.

Governments become eclipsed. They step back so as not to impede the leaders, and encourage the small players to tag along with the front runners. Collaboration between governments and industry emerges as a means of achieving higher goals. This is really the "win-win-win" situation.

The regulatory framework backs off from the leaders as competitive market forces take over where external regulation once operated. The corporations have self-imposed regimes of operating codes and require their suppliers to conform. The regulatory systems are targeted at the laggards and the leaders become unfettered by political regulatory regimes.

WHERE IS THIS LEADING?

The driving forces that are stimulating change in industry at large, are also shaping the waste sector. There is increasing regulatory involvement in the sector to ensure that social and environmental objectives are achieved and not sacrificed in the cause of economic expediency. The growing awareness of our communities has led to greater levels of community participation in waste management issues. Increasingly governments are withdrawing from the provision of infrastructure, in favour of user pays systems with higher levels of private sector delivery. And waste generators are demanding more from the waste managers. The outcomes from the driving forces and their implications for the waste management industry are discussed below under the headings of technology, people and markets.

Technology

With increasing expectation of performance quality and growing costs of waste disposal, will come a demand for more technological sophistication from the industry. This technological demand will be targeted at reducing costs, improving environmental outcomes and providing new methods for handling wastes and at-source recovery of resources.

Signs of this are already evident in collection systems and in landfill management. For kerbside collection, the thrust has been to achieve higher levels of efficiency and reduced costs. Mechanisation has been a key tool in this trend. At landfills, the demands for greater environmental performance have necessitated more comprehensive management systems, and more technology in leachate and gas management. Cleaner production is now a tool for industry that is increasingly being applied to reduce in-process waste, and waste managers will have to embrace the capital and operating issues associated with this tool.

These trends can be expected to continue at source, collection, re-processing and disposal points, and there will be significant demands for new technologies in the areas of processing and resource recovery. The additional funds that are flowing into the waste sector, plus government drives to reduce disposal will ensure that technology demand will remain high in these areas for some time to come.

People

The dual thrusts of cost reduction and more sophisticated technology will require fewer, more highly skilled and knowledgeable people in the waste management sector. There will be requirements for more training, implementation of competencies, linking of remuneration to competencies and performance, and increasing dissemination of knowledge across the industry.

As accreditation of waste managers becomes a requisite for operating in the industry, so the skills and training of the people will become more formalised, registered and audited. There will be higher levels of accountability and greater risks associated with errors. This trend will be heightened with the advent of greater post-consumer product stewardship. If the waste management sector plays a significant role in this aspect of product life-cycle, then the skill mix of the people within the industry will change along with the accountabilities and responsibilities.

Markets

The markets for the waste management industry will grow in several dimensions in response to the driving forces. There will be new market opportunities for technology providers to meet the demands outlined above and for service providers in the areas of training and technical support will see new markets emerge. Also, the sector will be called upon for greater levels of investment in utility and process infrastructure.

For the operators there will be opportunities to implement the new technologies associated with waste management and resource recovery, and there will also be new markets created within the existing client base. As waste generators are pressured to reduce waste, and assume higher levels of responsibility for products after the consumer phase, so the tasks that are needed will progressively fall outside the core business areas of the generators and the waste management sector will be positioned to step-in.

THE FUTURE FOR WASTE MANAGEMENT

Progressively the waste management industry must come to see itself as a resources management industry if it is to have a sustainable life well into the new millennium.

Historically, the industry has been working in a resource management mode in the down-stream collection, processing, recycling and disposal of wastes. But the challenge for the future is to move into the up-stream resource management areas of minimising wastes and optimising resource utilisation within the business domains of its clients.

As the clients of the waste management industry move to embrace eco-efficiency and sustainability, so to must the waste management industry move to embrace such concepts. However, the industry cannot afford to be led by its clients and must be prepared to invest in increasingly large and sophisticated infrastructure.

For true competitive advantage the new breed of waste managers must embrace sustainability concepts and translate these into the services that they provide to their customers. The waste management company of the next decade must create sustainability advantages and savings through their businesses and transfer these to their customers in a transparent process of service.

This process requires an understanding of the sustainability challenges facing customers and the development of solutions that meet their sustainability goals. The future business will be entirely driven by the customers' needs, and therefore individually customised to suit the customer.

The targeting of customer needs will start from within the customers' business and extend outwards through the extended responsibility chain that customers will assume in both product stewardship and residuals management. The waste management sector will still undertake many of the historical tasks that have been a part of waste management, but they will be packaged and focused to individual customers' needs.

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