Briefings from Oman
Waste Management
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Published by Ithraa, the Sultanate of Oman’s inward investment and export development agency, Briefings from Oman is a series of ten sector-specific documents that explore waste management, logistics, tourism, health, manufacturing, agriculture and fisheries, and more.

Designed to connect the world with contemporary Oman and its dynamic business community, each Briefing provides a snapshot of one sector in the sultanate and the ambitious projects and innovative business ideas currently driving that space.

Informative, realistic and easily digestible, the Briefings are intended to inspire business, investors and our partners at large to consider the significant opportunities these sectors present.

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Waste is a global challenge. If not properly dealt with, waste carries serious health, fiscal and environmental consequences. It is a problem that is linked to the way societies produce and consume. It is an issue that concerns everyone.

Global municipal solid waste (MSW) generation levels are expected to rise to 2.6 billion tonnes per year by 2025, this increase is influenced by population growth, urbanization, economic development and industrialization. Generally, the higher the economic development and rate of urbanization, the greater the amount of MSW produced.

The world’s population is expected to reach 8 billion by 2024, 80% of this population will live in cities and become part of the growing consuming middle class. OECD research suggests that by 2020 there will be more than 1 billion new global consumers spending between US$10 and US$100 per day. A by-product of consumerism is the generation of waste. Indeed, public waste systems are already struggling to keep pace with the fast expanding, consumer-driven urban middle class. Indeed, it is estimated that 90% of the raw materials used in manufacturing become waste before the product leaves the factory while 80% of products made get thrown away within the first six months of their life.

Effective waste management is central to Oman’s sustainable future and critical for the conservation of the sultanate’s natural resources. And as the volume of Omani waste grows, so does the urgency with which we must focus on recycling, re-use, energy recovery and the circular economy.

Those working in today’s US$1 trillion a year waste sector already understand the potential of sound waste management. If handled properly, Oman’s waste sector has huge potential to turn problems into solutions, create new businesses and jobs, reduce greenhouse gas emissions from landfills and convert waste to energy. Let us think of waste not as a problem, but as a commercial opportunity to recover and convert important resources. The message is clear: today’s circular economy is not just about saving the planet – it is about profiting while doing so.
Nearly all waste is generated by city-dwellers and as the world’s population grows and hurtles towards an urban future, the amount of municipal solid waste (MSW), one of the most important by-products of an urban lifestyle, is growing even faster than the rate of urbanization.
City Dwellers

Ten years ago there were 2.9 billion urban residents generating about 0.64 kg of MSW per person per day (0.68 billion tonnes per year). Today, there are about 3 billion residents generating 1.2 kg per person per day (1.3 billion tonnes per year). By 2025 this will likely increase to 4.3 billion urban residents generating about 1.42 kg/capita/day of municipal solid waste (2.2 billion tonnes per year).

On the domestic front, Oman’s population is projected to reach 4.9 million by 2025, generating 1.2 kg of waste per person per day. The possible negative repercussions of generating such large amounts of MSW are simply staggering. Indeed, once one starts to think about them it is hard to think about anything else.

The Basics: What is Municipal Solid Waste?

Any waste collected by or on the order of municipalities falls under the definition of municipal solid waste (MSW). The Organisation for Economic Co-operation and Development (OECD) defines municipal waste as:

Waste from households, including bulky waste, similar waste from commerce and trade, office buildings, institutions and small businesses, yard and garden waste, street sweepings, the contents of litter containers and market cleansing waste.
## Municipal Waste Sources

<table>
<thead>
<tr>
<th>Source</th>
<th>Types of Solid Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>Food wastes, paper, cardboard, plastics, textiles, leather, garden wastes, wood, glass, metals, ashes, special wastes (e.g., bulky items, consumer electronics, white goods, batteries, oil, tyres) and household hazardous wastes.</td>
</tr>
<tr>
<td>Industrial</td>
<td>Housekeeping wastes, packaging, food wastes, construction and demolition materials, hazardous wastes, ashes, special wastes.</td>
</tr>
<tr>
<td>Commercial</td>
<td>Paper, cardboard, plastics, wood, food wastes, glass, metals, special wastes, hazardous wastes.</td>
</tr>
<tr>
<td>Institutional</td>
<td>Paper, cardboard, plastics, wood, food wastes, glass, metals, special wastes, hazardous wastes, biomedical waste.</td>
</tr>
<tr>
<td>Construction &amp; Demolition</td>
<td>Wood, steel, concrete, dirt, etc.</td>
</tr>
<tr>
<td>Municipal Services</td>
<td>Street sweepings; landscape and tree trimmings; general wastes from parks, beaches, and other recreational areas; Sludge Process (manufacturing, etc.)</td>
</tr>
<tr>
<td>Industrial</td>
<td>Process wastes, scrap materials, off-specification products, slay tailings.</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Spoiled food wastes, agricultural wastes, hazardous wastes (e.g., pesticides).</td>
</tr>
</tbody>
</table>

## Environmental Risks & MSW

MSW contributes to environmental problems including habitat destruction, surface and groundwater pollution and other forms of air, soil and water contamination. Incineration creates toxic substances, while landfills emit methane and other gases which contributes to global warming.

## The Challenge Ahead

Oman needs to further integrate waste management systems while making reduced environmental impact a top priority. To achieve more sustainable MSW management practices, the challenge will be to reduce the amount of solid waste generated, while increasing the amount of waste diverted from Oman’s landfills through reuse, recycling and other initiatives in an economically feasible way. Residents of Oman must also realize that continued economic growth can’t come at the expense of the sultanate’s environment.
In today’s complex world “prediction is very difficult, especially if it’s about the future.” However, there are trends suggesting where and how the waste management industry will evolve.

One of the best stories of government leadership and collaboration with business for waste prevention and waste reduction is Flanders in Belgium. The Flemish waste policy gives priority to waste prevention, followed by re-use, recycling, waste incineration - with energy recovery - and, as last and worst option, landfilling.

Flanders has an environmental tax for waste treatment that ranges from US$9 per tonne for incineration to US$95 per tonne for landfilling. In 2009, the revenues from these levies totaled US$36 million. These funds were then used for proactive waste prevention strategies. One of Flanders’ key strategies to prevent waste goes to the root of the waste problem: the very design of products.

In 2008, US$1.19 million in subsidies were given to reuse and recycling centres. In 2009, Flanders had over 110 second-hand shops employing a total of 3,861 employees and serving over 3.6 million paying customers. The government also organizes “Ecodesign Awards” for students and professionals as a way to encourage innovations in waste prevention. Prizes range from US$500 and US$5,000.
Zero Waste & Reuse = Green Jobs

Zero waste - a state in which 95% or more of materials are diverted from landfills into some beneficial next use - wouldn’t just help Oman’s environment, it would help the sultanate’s economy too. Recycling, composting and reuse create green jobs and lots of them. Recycling and reuse create at least nine times more jobs than landfills and incinerators. And in the US, recycling jobs generate an annual payroll of nearly US$37 billion and gross over US$236 billion in annual revenue.

A new briefing from RREUSE shows that the job creation potential of the re-use sector is significantly higher than recycling, incineration and landfill. The report cites US figures showing that for 10,000 tonnes of waste products and materials, one job would be created if incineration were used compared to six jobs in landfill, 36 jobs in recycling and up to 296 in refurbishment and re-use. Data from Komosie, a Belgian network of approved re-use organisations suggests even greater potential for re-use, at 800 jobs for 10,000 tonnes. The conclusion from these statistics is clear: landfilling kills jobs.

Reuse Creates Skilled Jobs

Greater reuse creates higher-skilled jobs, improving the quality of jobs created. Recycling and waste management offer a larger proportion of low or intermediate skilled employment in the areas of collection, handling and processing. However, reuse requires more skilled and semi-skilled workers. Furthermore, reuse through more remanufacturing, servitisation and repair, creates employment near existing manufacturing sites where unemployment tends to be higher, giving these areas a economic significant boost.

Five barriers hindering high-value reuse

1. Knowledge
   Lack of knowledge and information on how products can be most effectively reused.

2. Technology
   The technology to pursue high-value reuse is either not available or still in development.

3. Market
   The market dynamics including costs, taxation, incentives and vested interests makes it difficult to adopt high-value reuse opportunities.

4. Legal
   Regulations surrounding the classification and management of waste and end-of-life products prevents reuse activities from being fully utilized.

5. Culture
   The nature of consumer behaviour regarding end-of-life and reuse of products is difficult to change to encourage more high-value reuse.
Breaking Down Barriers

To address the barriers to reuse Oman’s Ministry of Environment & Climate Affairs could work with Omani businesses and key stakeholders to develop resources, tools, guidelines and policies that ease or remove these barriers and encourage greater high-value reuse.

<table>
<thead>
<tr>
<th>Barrier Type</th>
<th>Opportunities to Break down Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>Put forward tools, guidelines to educate municipalities, businesses, families, consumers about reuse.</td>
</tr>
<tr>
<td>Technology</td>
<td>Incentivize and support programs to research and innovate technological solutions for greater reuse.</td>
</tr>
<tr>
<td>Market</td>
<td>Collaborate with government organizations to enact new legislation and modify existing legislation to promote greater reuse activities.</td>
</tr>
<tr>
<td>Legal</td>
<td>Promote public-private partnerships that encourage and sustain co-operation between businesses around reuse.</td>
</tr>
<tr>
<td>Culture</td>
<td>Create awareness programs to shift the mind-set of Omani consumers towards greater reuse.</td>
</tr>
</tbody>
</table>

The Middle Class Drive Waste

Waste generation is largely driven by two factors:

Population

Consumption Patterns

Which are controlled by Gross Domestic Product per Capita (GDP/c)

The OECD estimates that the global middle class - defined as households with daily expenditures of US$10-100 per person, in 2005 purchasing power parity terms - will swell to 4.9 billion people by 2030, from 1.8 billion in 2009. Two-thirds are expected to reside in Asia, up from 28% in 2009, with China home to the largest share.

Against this backdrop, the traditional “take-make-dispose” economic models, where manufacturing, consuming and disposing goods are a linear process, are becoming increasingly unviable.

For example, the World Economic Forum estimates that 80% of the US$3.2 trillion value of the global consumer goods sector is lost irrecoverably each year due to this wasteful model.
Increase in GDP/c

In addition to population growth and rise in middle class consumers, a remarkable increase in GDP/c especially in developing countries is on its way. By 2025, world production will have doubled in relation to 2005. And by 2050, world production may again have doubled compared to 2025. The global average GDP/c in 2025 will be approximately one and a half times the current rate and in a business-as-usual scenario it could be fourfold by 2050.

American economist and Earth Institute Director, Jeffrey Sachs, estimates that in developing countries GDP/c will be around US$40,000 in 2050, the same as US GDP/c in 2005.

The remarkable growth of global GDP/c will drive waste volumes. Using macroeconomic data from 30 OECD countries it has been estimated that a 1% increase in national income creates a 0.69% increase in MSW.

However, the upside is the larger the GDP/c the more advanced and effective waste management systems and technologies become. So, global GDP/c growth will multiply modern landfills, efficient collection systems, mechanical biological treatment (MBT) and waste-to-energy (WTE) facilities around the world.

Eating Habits

Changes in food culture and eating habits, particularly in developing countries, is another key factor in the fast changing waste management industry. As GDP/c increases, the demand for agricultural goods is expected to rise by 70% and the demand for meat will double by 2050.

Besides the serious issues related to food production and sustainability, these changes will impact waste composition in a large part of the world. The organic fraction will be more dominant in MSW, more agricultural and meat waste will create new problems that have to be faced. Moreover, such changes in waste composition make the greenhouse gas challenge for waste management more difficult than it is already.

Urban Food Waste

It has been estimated that urban food waste will increase globally by 44% between 2005 and 2025. During the same period, Asia is predicted to experience the largest increase in food waste production, from 252 million to 377 million tonnes. If present waste management trends are maintained, landfilled food waste is predicted to increase world CH4 emissions from 31 million to 43 million tonnes and the landfill share of global anthropogenic emissions from 8% to 10%. CH4 emissions has 21 times the global warming potential of carbon dioxide.
Illegal Waste Shipment

The shipment of illegal waste is a further challenge. Exporting waste illegally to developing countries has become a growing international business as companies try to minimize the costs of new environmental laws that tax waste or require it to be recycled or otherwise disposed of in an environmentally responsible way.

E-waste

As electrical and electronic products, including TVs, mobile phones, e-toys, PCs, digital cameras and pervasive computing are rapidly devalued and become waste due to fast update and built-in obsolescence, the waste-electrical-and-electronic-equipment (WEEE) stream will become a major challenge for the future waste management industry.

According to a StEP report, e-waste is now the world’s fastest growing waste stream. Per citizen, Oman produces 17kgs of e-waste each year - 69,800 tonnes in 2015. China generates 6.1 million tonnes of e-waste annually only second to the US with 7.2 million tonnes.

The European Environment Agency estimates between 250,000 tonnes and 1.3m tonnes of used electrical products are shipped out of the EU every year, mostly to West Africa and Asia. These goods may subsequently be processed in dangerous and inefficient conditions, harming the health of local people and damaging the environment.

In the Middle East, just 5% of e-waste is sent to recycling facilities located in Asia, Africa and South America while the rest ends up in landfills.

A report from United Nations University found that the world produced 41.8 million tonnes of e-waste in 2014 - an amount that would fill 1.15 million 18-wheel trucks. Lined up, those trucks would stretch from New York to Tokyo and back.

And by 2017, the volume of discarded e-waste worldwide is expected to be 33% higher than in 2012 and weigh the equivalent of eight of the Great Pyramids of Egypt.

The Highest in the World

Social, economic and industrial development in the GCC, coupled with an expanding population has created an explosion in the generation of MSW over recent years. GCC countries produce a higher amount of waste per capita than any other region in the world. It is against this backdrop that waste-to-energy (WTE) has become an important mode of waste management, landfill waste reduction as well as an essential source of power.

The GCC produces roughly 650kgs of municipal waste per person per year, almost six times that of India. While only amounting for 15% of the US population, GCC countries produce almost the same amount of MSW per day as the US.
Oman’s Waste Generation

On the domestic front, and with a population of 4.1+ million, Oman generates more than 1.7 million tonnes of MSW each year. The average per capita waste generation is more than 1.2 kg per day, which is equivalent to 4,263 tonnes of MSW every day, among the highest in the world. By 2020, Oman is expected to produce 4.6 million tonnes of MSW per annum.

Currently, Oman’s MSW is characterized by a very high percentage of recyclables, primarily paper and cardboard (15%), plastics (20.9%), metals (1.8%) and glass (4%).

However, the sultanate is yet to realize the recycling potential of its municipal waste stream. Most MSW is transported to 350 authorized and unauthorized dumpsites for disposal which is creating environment and health issues.

Paradigm Shift

Oman’s current waste management systems, even running at their best, are struggling to handle the growing amounts of waste. So, unless a new paradigm is adopted, a tsunami of uncontrolled dumpsites will be the prevailing waste management method. To effectively tackle the issue, we have to think of waste reduction, reuse, recycling and management. The issue won’t be resolved by focusing purely on waste disposal.
Investment
Oman’s total investment for basic MSW infrastructure is expected to be around US$150 million, the waste-energy-water project will have an approximate total investment of US$750 million and the industrial waste infrastructure circa US$150+ million.

Municipal Solid Waste
The traditional methods of handling MSW in Oman need to be addressed as they contribute to the increasing amounts of greenhouse gases being produced, affecting the Omani environment and human health. Uncontrolled dumpsites have existed for many years in Oman - containing mixed waste streams of hazardous and non-hazardous waste. It is estimated that more than 350 dumpsites are scattered across the country. None of these dumpsites have dielectric layers which reduce harmful gas emissions, prevent contamination of soil and the leaking of toxic fluids into groundwater sources.

In a concerted effort to control environmental damage, Be’ah has embarked on an aggressive plan to close all dumpsites and replace them with modern engineered landfills and transfer stations. As the infrastructure is established, outsource contracts are being floated as tenders, whereby experienced international companies will provide municipal waste management services that include pre-collection, collection, transportation, treatment and disposal. Oman comprises of 11 governorates and based on the quantity of waste and distance, ten contracts have been developed to meet the sultanate’s waste management needs.

Hazardous & Healthcare Waste
Healthcare waste has been either incinerated without strict emission controls or dumped in the open. Be’ah plans to establish three major healthcare treatment facilities, mostly based on autoclave technology and four smaller facilities to cater for the needs of remote areas.

As for hazardous industrial waste, in the absence of suitable treatment facilities, this is stored on Oman’s industrial estates awaiting a solution or is dumped in open dumpsites. Be’ah has started working on an integrated hazardous waste treatment facility that would treat almost all types of hazardous waste generated in Oman. The integrated industrial waste treatment facility will include a dedicated waste solidification facility; units for thermal, physical and chemical treatment designed to process different types of industrial waste; as well as landfills. The facility will treat and process waste with maximum safety in accordance with international standards. Be’ah’s plan for industrial waste will be carried out in phases.

Be’ah operates the following plants:

- Al Multaqa healthcare waste (HCW) plant located in Al Amerat consisting of two lines of incinerators and autoclaves. This plant serves HCW received from Muscat, Al Dakhliya and South and North Al Sharqiyah.
- Sohar (Liwa) HCW plant - commissioned in late 2015 - serves South and North Al Batinah, Al Buraimi and Al Dhahira.
- The Thumrait Plant will serve Dhofar, commissioning is planned for late July 2016. There are plans to construct small treatment units to serve remote areas though this has yet to be defined.
Modern Landfills
Beginning operations in 2011, the Al Multaqa engineered landfill in Al Amerat - originally built by Muscat Municipality - is the first engineered sanitary landfill in Oman. The landfill site, spread over 9.1 hectares, consists of five cells with a total capacity of 10 million m³ of solid waste. Each cell has 16 shafts to take care of leachate. All shafts are interconnected in order to facilitate movement of leachate to the leachate pump. The project is part of the government’s initiative to tackle solid waste in a scientific and environment-friendly manner. Being the first of its kind, Al Amerat landfill is expected to be an example for future solid waste management projects in Oman.

Today, Be’ah operates four engineered landfills including Al Multaqa (Al Amerat), Tahwa (South Al Sharqiya), Izz (Al Dakhiliya) and Barka (South Al Batinah). More engineered landfills are being constructed and some are soon to be commissioned in:

![Operational Landfills](image1.png)
- Al Buraimi
- Thumrait
- Duqm
- Khasab

![Upcoming Landfills](image2.png)
- Al Mudhaybi
- Ibbi
- Al Multaiq
- Izz
- Tahwa

Transfer Stations
Transfer stations are centralized facilities where waste is unloaded from smaller collection vehicles and re-loaded into larger vehicles for transport to a disposal or processing site. It is an engineered structured facility designed to receive mixed municipal waste from normal refuse collection vehicles and discharge it into large semi-trailer trucks for more economical shipment to distant treatment or disposal sites. The facility is also designed to receive bulky waste including used tyres as well as construction and demolition waste that are handled separately by special containers and then transported to its final destination for processing or treatment. Be’ah plans to establish 16 transfer stations in different locations across Oman.

Waste Diversion Strategy
Be’ah has developed a diversion strategy that takes into account the nature of waste produced in Oman and its sources. The strategy calls for recycling facilities for different waste streams that will help maximize value and support Oman’s economy through various country value initiatives. A major national project is also in the planning stage to recover energy from waste which will then be used to power and run a desalination plant that will generate a substantial amount of much needed potable water. Ultimately, the diversion strategy aims to reduce the amount of waste disposed at landfills by utilizing waste for different purposes.

Challenges for Oman
Oman’s existing waste collection, transfer and transport practices are often affected by improper bin use, poor route planning, lack of public information about waste collection schedules and the number of vehicles used for waste collection. Tenders - covering a 5 – 10 year period - have been issued to international waste collection operators for different regions. For example, Lisbon-based Suma through a consortium Suma Ecovision has begun waste collection for Al Sharqiya South, operating and managing transfer stations and landfill operations. Similarly, Urbaser a leading Spanish company specialized in waste management with international expertise provides services in South Al Batina. Furthermore, Veolia, a global waste management player, has won its first waste management contract in Oman. More outsource contracts will be awarded, whereby experienced international companies will provide municipal waste management services that include pre-collection, collection, transportation, treatment and disposal to cover Oman’s 11 governorates.

Attitudes to Waste
Omani household attitudes towards waste generation, utilization, reuse and recycling are influenced by family size, level of education, GDP/c, gender, peer influence, location of household, waste collection service and awareness of environmental affairs. Social influences, altruistic and regulatory factors are some of the reasons why certain communities develop strong waste management, reuse and recycling habits. For example, people who frequently go to the bins to dispose of waste are more likely to recycle products at home and in most cases, as the distance to recycling bins decreases, the percentage of items separated and collected at home for recycling increases.

Recycling’s Down in the Dumps
The economics of recycling are currently unfavorable. In many cases recycling waste is expensive compared to buying the product. With falling oil prices, a strong US dollar and a weakened Chinese economy it is cheaper for plastics companies to use new or virgin materials than recycle. Industry estimates suggest that 2,000 US municipalities are paying to dispose of their recyclables instead of the other way around.
Opportunities for Oman

Waste Management Contracts
Recently, government has awarded a number of contracts to the private sector to set-up and operate integrated waste management facilities or waste recycling units. However, opportunities in the sector are still largely untapped.

Waste Collection & Transportation Services
Private players are active in Oman’s waste collection and transportation market. The government has plans to reduce the current 350 solid waste disposal sites to 10, this implies more distances between disposal sites and therefore would require more transportation to handle waste. There is good growth potential for such services in the market.

Management of Landfills
At present, Be’ah manages Oman’s landfills. However, it is likely that new facilities will be built under BOOT or BOT contracts. With the large amount of MSW generated each day by Oman, there are considerable opportunities for waste management facilities.

Waste Equipment Suppliers
As Oman re-invents its waste sector, opportunities will arise for the supply of waste handling equipment such as trucks, garbage bins, incinerators and other equipment.

Waste Water Treatment Facilities
The current market for the GCC’s waste water treatment is estimated at US$2.2 billion and is forecast to reach US$4 billion by 2020, growing at a 10.6% CAR. The lack of specialized waste-water treatment facilities in Oman provides investors with a key business opportunity.

Waste Recycling
Recycling of waste paper, cardboard, metal and glass is already practiced in GCC albeit on a small scale. However, as waste management practices become more efficient across the sultanate, waste recycling is likely to be more attractive commercially.

Waste-to-Energy (WTE)
The high levels of waste generation per capita and the growing population rate of Oman provides a key opportunity for energy generation from waste. Reports have suggested that the WTE market will grow to between 300-500MW of power by 2020. Countries such as Saudi Arabia, Qatar and the UAE have already announced major plans in the WTE market.

Industrial Waste Facilities
Given the high level of industrial activity in Oman and the lack of disposal options for industrial waste – currently industrial waste is stored on industrial estates. Be’ah estimates that in 2015, Oman had 1,360,000 tonnes of untreated industrial waste, approximately 90% of this - including slag - is generated in Sohar.
Ban Plastic

It’s not a secret that most plastics take hundreds, if not thousands of years to photodegrade, or that they’re wildly hazardous to local ecosystems and wildlife. That’s why cities are starting to address the plastic waste generated within their borders. Styrofoam in particular has been discussed widely throughout the years, and cities across the world have increasingly been resorting to bans on food packaging made out of polystyrene foam. While it’s cost-effective and durable enough for packaging, its lightweight makes it prone to being easily spread by the wind, and it can seep compounds like styrene into the earth and groundwater.

Interest in Sustainable Living

The Omani public’s attitude towards waste management, reuse and recycling requires a radical overhaul. People can change their attitudes about waste once they’ve a better understanding of the problems and the eco-friendly options available. Indeed, the Omani public may generally be more environmentally aware today, but many still don’t fully understand the simple steps to go green. Education can help.

Changing the Public’s Behaviour

Changing the public’s waste management, reuse and recycling behaviour won’t be a simple or straightforward exercise. No single model exists to enable Omani policymakers to quickly change the actions of householders in relation to waste management. However, there are a number of steps that can be taken to facilitate improved household waste management behaviour:

- Improve two-way communication between all waste actors to create better understanding of different perspectives in relation to waste.
- Disseminate appropriate information and education about waste issues across Oman. Information needs to be developed by sources that are trusted by all waste management actors for it to be effective.
- Develop improved waste management facilities both in terms of door-to-door collections and off-site provision. The nature and extent of the waste management facilities provided helps to create the benchmark for social norms of acceptable waste management behaviour.

Mandatory Composting

Nearly 30% of all food fails to end up in someone’s mouth and if the total worldwide food loss and waste were a country, it would be the third largest CO2 offender on the planet. This means there are still millions of tonnes of food sitting at the bottom of a landfill that could have otherwise been turned into healthy compost material for personal or municipal use. That’s why more municipalities across the world are starting to institute programs for organic material composting.

Biodegradable Plastics

The market for biodegradable plastic resins has been increasing steadily for a number of years and is currently expected to increase by 19% per year into 2017. While some possible applications include car parts, clothing and electrical components, there’s still the issue of labelling certain plastics “biodegradable”. Without proper recycling and composting systems in place to break down the plant-based material, these plastics won’t degrade. When polylactic acid packaging in particular is mixed with other types of plastics during processing, it can contaminate the entire batch of recycled plastic, rendering it useless.

Increased Corporate Responsibility

It’s easy to make hollow promises lauding “corporate social responsibility,” but more and more companies and businesses are seeing that actions do indeed speak louder than words. The age of the conscious Omani consumer and conscious public is upon us and firms will naturally be increasing their self-generated waste recycling efforts, as well as being more vocal about sustainability in general. Greenwashing is getting increasingly difficult to manage, as people are more vigilant and ready to pounce on illegitimate sustainability efforts. Besides, there are upsides to businesses becoming more sustainable, like increased supply line efficiency and reductions in industrial waste.
If there is one thing waste management experts agree on it is that the linear make-use-dispose model on which our societies have been built must be dumped. We need a circular economy approach where materials are valued and designed to last longer and where opportunities for re-using materials are easily accessible.

The MacArthur Foundation and McKinsey report: ‘Towards the Circular Economy’ estimates the circular economy could be worth US$1 trillion a year worldwide by 2025 if companies focused on circular supply chains that increase recycling, reuse and remanufacture. And a 2014 Nielsen global survey on Corporate Social Responsibility, found that 55% of consumers are willing to pay more for products from companies they know are making a conscious effort to reduce their carbon footprint. That is up from 50% in 2012 and 45% in 2011.

There are significant opportunities in Oman for companies, large and small, that have ideas or technologies that can extract resources from our waste stream, separate them earlier on, or design products that can be remanufactured without having to trash them and then recover materials. Indeed, we believe the incentive for entrepreneurs to address current global sustainability challenges like waste are considerable.
Investing in Waste Management:
A Step-by-Step Guide

**Step 1**

**Ithraa**

**Obtain Commercial Registration**

_Timeframe:_
2 hours

*Required documents:*
- Copy of partner’s passport
- Copy of Omani partner’s ID card
- New commercial registration (CR) form signed by all partners
- Samples of authorized signatures

*In some cases, security approval is required (1-5 weeks)*

Criminal record clearance is to be attached by Omani Embassy in applicant’s home country

**OCCI**

**Collect Membership card**

_Timeframe:_
1 hour

_Required documents:_
CR payment receipt

**Company Stamp**

**Obtain company stamp**

_Timeframe:_
10 minutes

_Required documents:_
CR

**Industrial License**

_Timeframe:_
6 months

*Required documents:*
- Copy of partner’s passport
- CR copy
- OCCI certificate
- Local municipality permit
- List of equipment of production
- Completed Be‘ah registration form
- Location of business with supporting documents
- Business plan and all related project documentation
- No objection letter from Be‘ah
- Approval from Be‘ah

*This requirement doesn’t affect other steps.*

Preliminary approvals from relevant government agencies depend on the requested type of commercial activity.

**Step 2**

**Open Bank Account**

_Timeframe:_
Depends on the Bank

*Required documents:*
- CR
- Passport copies
- Articles of Association
- Sample of authorized signatures

*Some banks may require additional documentation*
**Step 3**

**Rental Agreement**

Complete Ministry of Commerce & Industry Investor Application Form

*Required documents:
  • CR
  • List of machinery
  • Identity card

*To apply to rent land, submit all the documents to MoCI

**Step 4**

**Municipality**

**Obtain Municipality Permit**

**Timeframe:**
1-3 days

*Required documents:
  • CR
  • OCCI membership card
  • Rental agreement

*Additional documents may be required – depends on the planned activities

**Step 5**

**Ministry of Manpower**

**Obtain Investor Visa**

**Timeframe:**
2 – 7 days

Register company on:
www.manpower.gov.om
and print application form

*Required documents:
  • Application form
  • CR + company stamp
  • OCCI membership card
  • Passport copies
  • Rental agreement
  • Municipality permit
  • Commitment letter

**ROP**

**Obtain Investor Visa**

**Timeframe:**
1-2 Weeks

Print visa application from:
www.rop.gov.om

*Required documents:
  • Application form
  • Medical report
  • Two passport-style photographs
  • CR + company stamp
  • OCCI membership card
  • Copy of passport
  • Rental agreement
  • Municipality approval
  • MoM approval

**ROP Civil Status**

**Obtain Investor ID card**

**Timeframe:**
1 day

*Required documents:
  • Investor visa
  • Passport copy
  • Present for fingerprinting
Formed in 1996, Ithraa is Oman’s award-winning inward investment and export development agency.

We are an ambitious organization committed to promoting the business benefits of Oman to a global audience. Our experience, expertise and global reach helps companies of all sizes realize their potential.

**Vision**

Promoting the sultanate as the best destination for investment and trade in the world.

**Mission**

To attract sustainable investment and promote the export of Omani non-oil goods and services that support the sultanate’s ambitions for growth and prosperity.

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