6.3.6. Create a detailed market research about the Turkish recycling and environmental industry

OVERVIEW

Total Turkish waste volume generation is expected to increase from 42.4 million tons in 2017 to 44.0 million tons in 2018. Waste recycling market revenue is predicted to reach EURO 1,132.8 million by 2018.

The most recent recently published by the OECD claims that 65 percent of Germany's municipal waste was recycled and composted. Eurostat reported that out of 353 million tons of waste produced in Germany, 152.8 million was recycled, 34 million went to energy recovery, 11 million was incinerated and 63.8 million was landfilled.

With recycled waste accounting for 35 percent of total municipal waste, the United States is struggling to make progress in the league of the planet's top recyclers. However, it certainly is not the worst country on the list either. Recycled and composted waste only accounts for 24 percent of Canada's municipal waste while Turkey only manages a dismal 1 percent.

Municipalities in Turkey, who are responsible for collecting the waste, gathered 31 million tons in 2016. According to the statistical institute in Turkey, only 9.8% was sent to recycling centers, with the rest stored in landfills.

- In the world

The average waste production per capita is 1.2 kg per day.
1.3 billion tons of municipal waste is generated annually.
1.67 billion tons of industrial waste is generated annually and 1.2 billion tons of these wastes are recycled / recycled.
The annual turnover of the world 'recycling sector is USD 475 billion.
World waste-to-energy production sectors' turnover is 13.6 billion USD.

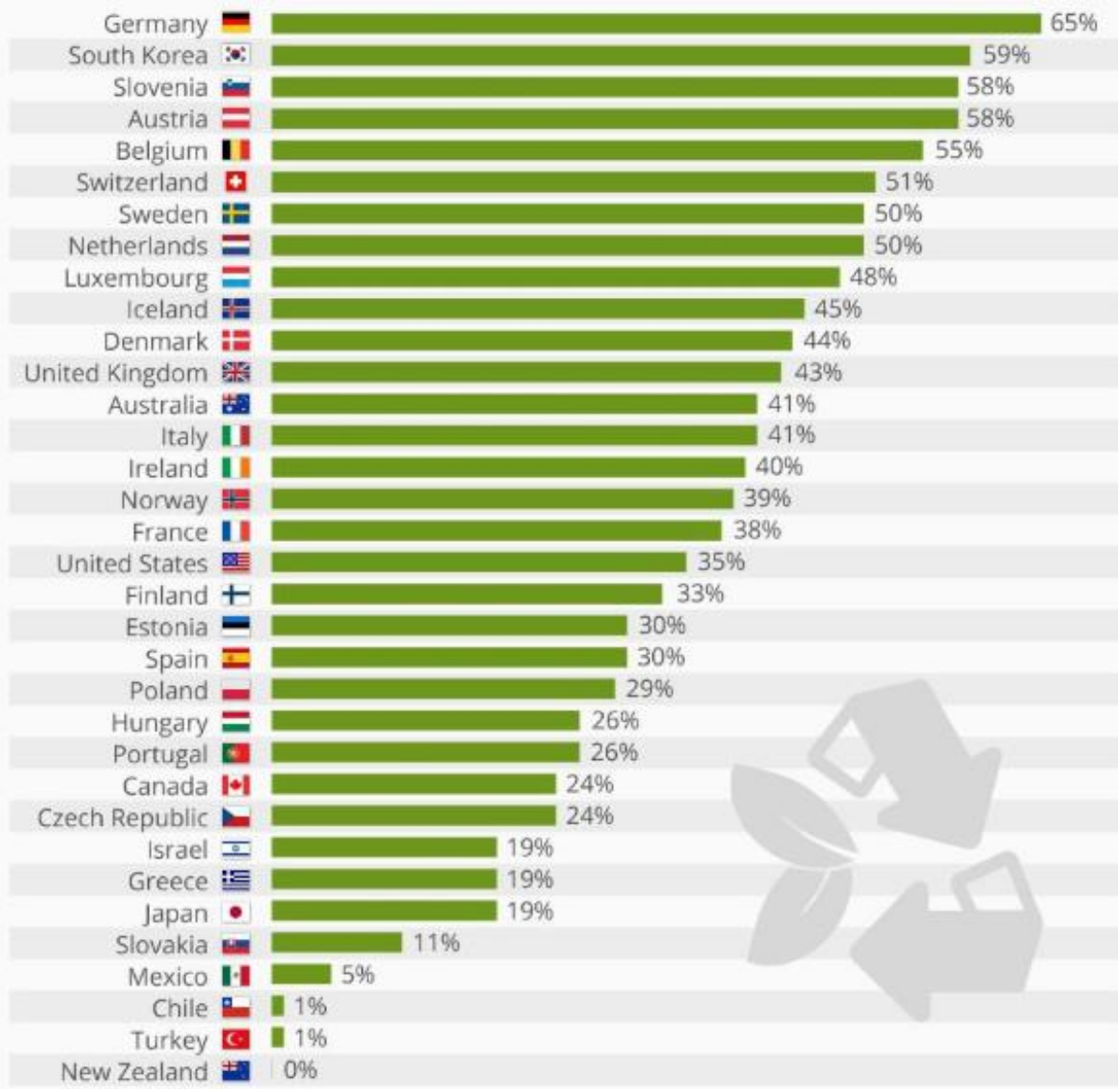
- In EU countries

Daily waste production per capita in the EU countries is 1.2 kg.
The annual municipal waste amount is 240 million tons. These wastes: 5.5% is recovered as energy by burning and 46% is recycled and recovered.
From 1995 to 2008, the regular landfill rate in municipal waste was drawn from 62% to 40% in EU countries.
The annual total amount of recyclable waste is 242 million tons.
Annual packaging waste amount is 79 million tons.
Annual turnover of waste management and recycling sectors is $ 149 billion.
1.5 million people are employed in the waste management and recycling sectors.

- In Turkey

Daily municipal waste production per capita is 1,1kg.
Total annual municipal waste is 30 million tons.
The composition of municipal waste is as follows: Recyclable waste: 25%
Organic waste: 40%
Flammable waste: 20%
Non-combustible waste: 15%
In total 15-20% of municipal wastes can be considered as recycling and recovery.

50% of municipal waste is stored in the wild, while the remaining 50% is buried in the municipal landfills. The economic value of the recyclable wastes that are buried in the soil is over 2 billion TL. Annually, approximately 35 million tons of industrial waste is generated. The annual turnover of the waste management and recycling sectors is 5 billion USD.



Recycled& composed waste as a share of total municipal waste in OECD countries

Plastic Waste

As per capita plastics consumption in Turkey has reached 90.1 kg by an increase of 11.5% in the last 3 years, experts suggest environmental and economic impact of plastic waste can be alleviated by recycling. According to the data by Plastic Industrialists Association (PAGDER), the per capita plastic consumption of 80.8 kg in 2015 increased by 11.5% in the last 3 years to reach 90.1 kg last year in Turkey.

Noting that plastics production was annually 1.5 million tons in the world in the 1950s and currently stands at 300 million tons to have become almost the most consumed commodity, Turkey produced 9.6 million tons of plastics annually. “Only 2.2 million tons of the 9.6 million tons of plastics produced in Turkey is used as packaging material, and only 501,000 tons of which is recovered. While plastics make life easier, they adversely affect human health and environment. Therefore, holistic solutions are required to solve the plastics problem.

The plastics sector’s contribution to economy was 37.8 billion dollars last year and the recycling of plastics was important for environment and economy. Noting that 1,439 firms in Turkey worked on recycling plastic waste, 16 cities with a total population of nearly 4.2 million in Turkey have no recycling facilities. A large part of waste arising from daily domestic life, so there was individual progress realizing the importance of recycling, however the prevalent societal view of packaging waste as “garbage” needed to change. Emphasizing waste sorting, the authorities must explain the importance of sorting at source and recycling of waste to our people who do not sort the packaging waste at source, put it in the garbage bin, or even dump it in the environment, and inculcate such culture and awareness in our people of all ages. It needs to be strongly pointed out that plastics should not be buried in the soil, but be sorted and recycled, because the use of plastics for other purposes and excessive consumption causes economic losses to the country dependent on imports of raw materials. Turkey should improve the recycling system now to save our future generations.

Research published in the journal ‘Science’ lists Turkey as among the top 20 countries in the world for mismanaging plastic waste.

Regarding to the researches that PAGCEV (Recycling Entity of the Turkish Plastic Industry Foundation) announced, said far more recycling and collection plants were needed to cope; currently there are 751 licensed recycling plants and 566 collection and separation sites.

WASTE GENERATION

Generation of municipal waste has been quite stable since the mid-2000s in Turkey. The low amount per capita reflects the remaining gap in GDP per capita compared with many other OECD member countries. However, 99% of municipal waste treated goes to landfill.

Municipal waste generation trends

Municipal waste is waste collected by or on behalf of municipalities. It includes household waste originating from households (i.e. waste generated by the domestic activity of households) and similar waste from small commercial activities, office buildings, institutions and small businesses treated or disposed at the same facilities used for municipally waste.,

ENVIRONMENTAL ISSUES OF TURKEY

As with most developed nations, Turkey has had to pay an environmental price for its industrialization.

Air pollution is a significant problem across Turkey, particularly in the country’s urban centers. According to the European Environment Agency (EEA), more than 97% of Turkey’s urban population is exposed to unsafe amounts of particulate matter pollution.

Turkey's carbon emissions have risen significantly in the past three decades. According to the Turkish Statistical Institute, carbon emissions increased 124% in 2011 compared to the country's emissions in 1990. Most of those 2011 emissions, 86 %, came from the energy sector, while 14 % came from Turkey has a rich biodiversity within its borders and this biodiversity is highly susceptible to climate change via the country's limited water resources. The water resources Turkey does have are not dispersed evenly across the country. Because of this, effective and integrated control over water resources is crucial for Turkey.

In addition to poor air quality and emissions, overfishing and water pollution have led to a significant decline in fisheries. The production of anchovies, one of the most prevalent commercial fish in Turkey, fell by 28 % in 2012, according to the Turkish Statistical Institute.

Environmental Policies of Turkey

Turkey's government began stepping up its environmental actions in the early 1980s and has only accelerated its embrace of laws and regulations designed to protect the environment. The country's environmental stance received a major boost when it began signing onto environmental agreements as part of the European Union.

A major Turkish policy that includes elements of environmental protection is the country's Tenth Development Plan (2014-2018). At the core of the plan is sustainable development and the increasing development of Turkey's renewable energy sector.

Turkey has also created and put in place several environmental strategy documents for sectors such as prevention and adaptation to climate change, conservation of biodiversity, soil erosion control, reforestation and fighting desertification.

With respect to reviving degraded landscapes, Turkey is making extensive investments and pushing reforestation programs. A few years back, the International Soil Reference and Information Center mapped Turkish land degradation as a way to facilitate watershed rehabilitation investments.

Clean Technology

Over the past decade or so, changing factors within the international energy markets have compelled Turkey to reexamine how it generates and consumes electricity. The result was the creation of a national development plan that supports investment in the country's renewable energy sector.

Turkey's push to embrace renewable energy has been backed by the Clean Technology Fund (CTF), a billion-dollar program designed to give middle-income countries the resources to innovate and develop clean technology. Turkey was the first country to benefit from the fund.

CTF: Clean Future

With the help of the CTF, Turkey appears to be leveraging investments as a springboard towards a clean future.

Data shows Turkey has sufficient wind, water, and sun to research the potential of renewable energy, which is still in its infancy. As of 2012, wind power provides just 2 % of Turkey's energy, while geothermal makes up about 0.3 %.

However, maps made by the Turkish government show vast possibility for wind, geothermal, and solar energy. For instance, the wind map shows a power generating capacity of 48 GW. Turkey plans to scale up all of its renewable energy production to meet 30 % of its energy needs by 2023.

Furthermore, Turkey's Electricity Market and Security of Supply Strategy sets up an overall target of renewable energy supplying a minimum of 30 percent of overall energy produced by 2023. Of this renewable energy mix, wind power is projected to climb up to 20 GW.

With all of this potential and the funds flowing in, Turkey appears to be poised for a clean technology revolution; maybe not tomorrow or within the next couple of years, but definitely in the coming decades.

Regulation of Waste and Waste Management in Turkey

Industrial and technological developments have increased rapidly throughout the world including Turkey. Furthermore, the population of Turkey is also increasing and the ever-increasing consumption creates larger amounts of waste materials and adversely affects the environment and human health.

The development of a waste management and disposal system has become necessary in all countries of the world. As part of the process of seeking entry to the European Union, Turkey continues to prepare the necessary legislation to satisfy European Union regulations for the disposal of solid waste, packaging waste, biodegradable waste and medical waste materials within the framework of the strategy.

An integrated waste management system is necessary for each town in Turkey that is suitable for the different contents and increasing amounts of waste produced. In the present study, Turkey’s geographical regions were examined in terms of population and the total amount of solid waste generated in each province to produce detailed data for the Turkish Ministry of Environment and Forestry. As a result of the recent studies, it is understood that Turkey has drawn up a ‘road map’ which will be followed by the national waste management strategy. To achieve this goal, the Ministry of the Environment and Forestry, Turkey and the municipalities must fulfill the tasks that have been allocated to them. Turkey will attain the European Union standards for waste management if these tasks lead to the achievement of the targets within the action plan.