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Fatemah K. Al-Asfour

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Classification: DDC Code: 809.9336 LCC Code: PN48

Language: English

London Journals Press

LJP Copyright ID: 925681
Print ISSN: 2631-8490
Online ISSN: 2631-8504

London Journal of Research in Science: Natural and Formal

Volume 22 | Issue 5 | Compilation 1.0

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Societies still thirst for more environmental awareness, regulating waste and consumption in a fast-paced lifestyle. This study sheds light on the "characteristics and components of waste" and its importance and negative impacts on our environment and, consequently, the health of communities. And the impact of community awareness on the success of the waste management project. And the importance of promoting the concept of waste management pyramid "Use environmentally friendly products, reduce waste from its source, reuse, recycle". The researcher's principle of raising awareness based on the success of academic education models in his field of specialization, and through the application and analysis of the sustainable development goals of the United Nations Educational, Scientific and Cultural Organization (UNESCO). This is on the one hand and on the other hand the use of iMindMap11 software to create mind maps and their applications that have shown positive results in academic education in terms of understanding, assimilation, information retrieval, practical application, ease of explanation, and linking information and concepts so that the recipient does not have separate facts. It has been used in environmental awareness, the positive results of which appear in the statistics in this research, which may contribute to community awareness in a wider range through integrated awareness work so as to help keep the community enthusiastic and eager for work and results. So that the first goal is to protect our planet Earth, sustain our primary resources, and improve the quality of water, air and soil.

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Tools: iMindMap11 software - Microsoft Excel - Questionnaire population – Survey.

The Important of research and reasons for Application:

The main objective of this work is to contribute to the establishment of a continuous integrated environmental awareness project that serves all segments of society.

It depends on knowledgeable concepts that contribute to creating a new definition of waste to get it out of being expired materials, into raw materials and new elements, and the growth of an economic resource moving towards sustainable development.

I. INTRODUCTION

People's belonging to planet Earth and its correlation with the components of earth, air and water creates a shared responsibility, the engineering of coexistence, symbiosis and continuity for survival is to preserve and protect all the sources of life on our planet.

The concept of sustainability is increasingly being used in multiple fields, we environmentalists focus on highlighting that sustainability is a unified long-term project that combines under its

roof not to harm the environment and the depletion of its primary resources and is It is directly related to Intergenerational, irreversibility, human welfare, ecological health, and Circular economy. Before the concept of "sustainable development" was used in the late 1980s, the dominant concept was "development" in its traditional sense. The first to refer to it officially is the report "Our Common Future" issued by the World Commission on Development and the Environment in 1987, and this committee was formed by a decision of the United Nations General Assembly in December 1983. The unilateral definitions of sustainable development were approved, and in fact they are closer to slogans and not definitions in the scientific sense:-

- Sustainable development is renewable and sustainable development.
- Sustainable development is development that does not conflict with the environment.
- Sustainable development is that which puts an end to the mentality of the infinite natural resources.

The most comprehensive definition is that sustainable development is development that meets the needs of human beings at the present time without compromising the ability of future generations, and focuses on integrated sustainable economic and environmental growth and social responsibility. Sustainable development is related to the concepts of developing land, cities and societies, as well as businesses, provided that they meet the needs of the present without compromising the ability of future generations to meet their needs.

The report issued by the International Commission on Environment and Development in 1987 entitled "Our Common Future" defined sustainable development as follows: [Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs]. It becomes clear to us that sustainable development is, "a comprehensive concept linked to the continuity of the economic, social, institutional and environmental aspects of society."

All over the world, the human migration to urban areas continues, which results in the expansion of cities and a rapid working lifestyle. Which led to an increase in the percentage of waste, its accumulation and its danger.

The cornerstone of this research is to highlight the importance of environmental awareness for the success of a waste management project. The project between humans on Earth and the protection of their planet.

Education and awareness are based on creativity, excitement, encouragement and continuity in application, in addition to highlighting results and achievements. It is appropriate here to refer to a more general concept of circular economy. The circular economy is an economic solution that tackles global challenges like climate change, biodiversity loss, waste, pollution, environmental disaster, Pandemic, Biotechnology risk, various operations, industries and treatment. Focus on the importance of products for recycling and reuse markets, rather than scrapping them and then Production of new materials from waste. At circular economy, all waste will be returned, nothing will perish. The circular economy is designed to keep waste in use and preserve natural systems.

We can say "waste is the result when humans lack creativity, innovation and imagination".

The framework for the success of the waste management project is based on "rationalization and regulation", rationalization of consumption and regulation of reuse, recycling and treatment processes. On September 25, 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development by developing a sustainable vision and reorienting humanity towards a sustainable path. The plan includes 17 Sustainable Development Goals (SDGs). Education for sustainable development - a key tool for achieving the sustainable development goals "A fundamental change in education patterns is needed to reach the global goal and the success of the sustainable development project. This is an urgent need to preserve biodiversity and the safety of life on our planet.

Back to “Learning objectives for achieving the SDGs -Education for Sustainable Development Goals-“, study and analyze the objectives, and then link them with the research topic "the success of the waste management project". We will observe a direct relationship between the success of sustainable development and the success of waste management, as well as the responsibility of education in building a culture of environmental generations. The researcher here refers to the objectives related to the topic of the research, which confirm and indicate the importance of taking care and following up the waste management project through education and building a future generation that deals with waste as an economic wealth and not expired materials that end up in the landfill.

Learning objectives for achieving the SDGs:-

1) Goal: 1.2.3. SDG 3 | Good Health and Well-being | Ensure healthy lives and promote well-being for all at all ages
2) Goal: 1.2.6. SDG 6 | Clean Water and Sanitation | Ensure availability and sustainable management of water and sanitation for all
3) Goal: 1.2.7. SDG 7 | Affordable and Clean Energy | Ensure access to affordable, reliable, sustainable and clean energy for all
4) Goal: 1.2.8. SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
5) Goal: 1.2.9. SDG 9 | Industry, Innovation and Infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation
6) Goal: 1.2.11. SDG 11 | Sustainable Cities and Communities | Make cities and human settlements inclusive, safe, resilient and sustainable
7) Goal: 1.2.12. SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns
8) Goal: 1.2.13. SDG 13 | Climate Action | Take urgent action to combat climate change and its impacts
9) Goal: 1.2.14. SDG 14 | Life below Water | Conserve and sustainably use the oceans, seas and marine resources for sustainable development
10) Goal: 1.2.15. SDG 15 | Life on Land | Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

We must also point out here:-

UNESCO together with UNICEF, the World Bank, UNFPA, UNDP, UN Women and UNHCR organized the World Education Forum 2015 in Incheon, Republic of Korea, from 19 – 22 May 2015, adopted the Incheon Declaration for Education 2030, which sets out a new vision for education for the next fifteen years.

By reading the researcher in Incheon Declaration - Education 2030 Framework, The researcher linked the achievement of sustainable development through a framework that is divided into three sections:

1) Section I, outlines the vision, rationale and principles of SDG4-Education 2030.
2) Section II, describes the global education goal and its associated seven targets and three means of implementation, as well as indicative.
3) Section III, proposes a structure for coordinating global education efforts, as well as governance, monitoring, follow-up and review mechanisms. It also examines ways of ensuring that SDG4-Education 2030.

The 2030 Education Agenda highlights that sustainable development is one of the goals of self-contained education - Goal No. 4 - under which the health-related sustainable development goals fall; employment growth; sustainable consumption and production; with climate change. Because, in fact, education is a key factor in accelerating progress towards achieving and succeeding all sustainable development goals, and therefore it was among the strategies to achieve them all. What is new here is that the strategy did not leave anyone behind in education. One of the

most important development and humanitarian goals of education and development, based on the principles of human rights, dignity, social justice, peace, inclusion and protection, as well as cultural, linguistic and ethnic diversity, ensuring well-being, equality between generations, and sharing responsibility and accountability. For better life. Through the fourth goal:-

1) Goal: 4.4 by 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.
2) Goal: 4.7 by 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.

All of the above confirms that education is the cornerstone in facing challenges and aspirations that will lead to sustainable and inclusive growth, and coexistence in peace.

Through my work in teaching and academic training of Environmental Health Department courses, and community awareness in public seminars. I was facing some difficulties in explaining and giving preference to: "Waste Management" and the reason for this is due to the branching of the topic and its multiplicity of chapters. The difficulties lie in explaining, detailing, summarizing and applying theories, solutions and interpretations. As for the recipient, understanding, remembering and applying the scientific and practical material needs study and attention. The researcher transferred the experience of education using mind maps to another field, which is community awareness. A contribution from us as researchers in closing the cycle (consumption - expiration - disposal - landfills).

After being invited to a symposium on "healthy cities" for one of the women's public benefit associations, I participated in the topic: "Awareness of the types and components of waste" under the slogan "Better Policy for a Better Life".

Using iMindMap 11- software- to create and display mental maps of the components and types of waste after its excellent results in education.

And by applying a questionnaire -a survey- to measure the extent of the subject's comprehension, influence, and response.

II. METHODOLOGY

The researcher seeks to apply a new methodology that opened to him after its success in academic education, the mental mapping methodology, which is a graphic technique, promoted by Tony Buzan, which aims to reach the maximum potential of our brain, because this method of analysis allows us to organize our thoughts using our mental abilities to the fullest. Mind maps are a simple way to manage and map all the information in our brain: words, ideas, numbers, readings, and drawings, and then link them together.

In a symposium entitled "Municipality waste between reality and hope" affiliated to one of the women's public benefit associations, the target group was women because they are housewives and it is the most influential in household waste.

The researcher will present and explain the mind maps. The survey tool was also designed to assess responses and the effect of applying mind maps on understanding and applying everything related to waste characteristics. Using Excel to analyze the data. And this study presents the survey with a questionnaire to measure the reactions and then analyze them.

We refer here to Tony Buzan, a psychologist, one of the most famous people interested in the field of memory, known as the Professor of Memory. His fame is due to his prominent invention known as Mind Maps, and these maps constituted the largest leading scientific revolution in this field. The mind map is a modern graphic means and an

innovative style through which we express our ideas through a scheme in which writing, images, symbols and colors combine, to interconnect ideas and concepts. Which aims to reach the maximum potential of our brain, because this method of analysis allows us to organize our thoughts using our mental abilities to the maximum. It is the technique that allows to organize thoughts. Using iMindMap11 software gives you a lot of flexibility in your work and great space to think and be creative with the information you present in its five workspaces.

Through the researcher's experience in this field, I have found iMindMap11 software the most advanced in this field.

Under the slogan "Better Policy for a Better Life", in the "Healthy Cities" symposium, with the participation of 58 women of different ages and scientific levels, on the topic "Awareness of the types and components of waste", two main methods were applied to provide information: the traditional method of explaining and discussing acquaintance and the "iMindMap11" program As shown in the following mind maps:

The mother mind map: “Waste Material Kinds” Alphabetical, figure.1

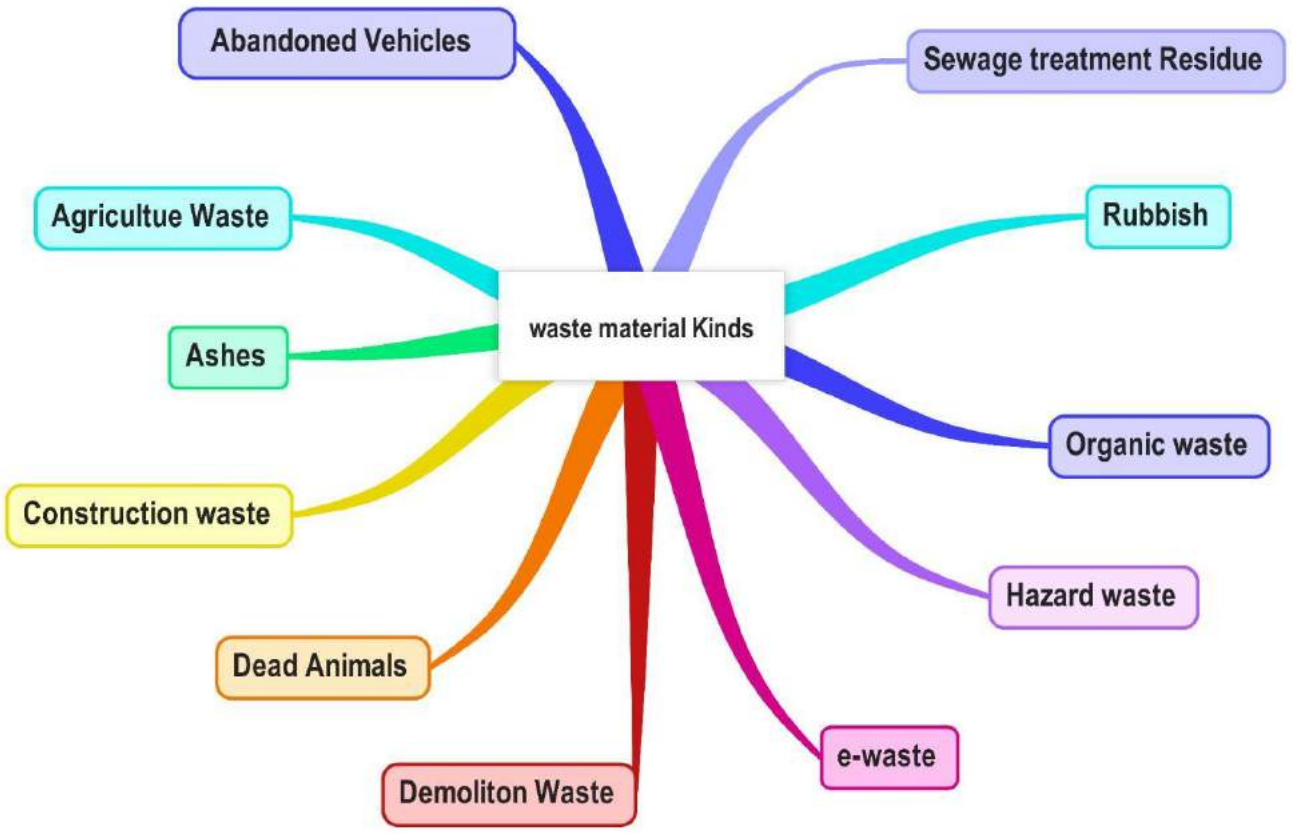


Figure-1: Waste Material Kinds

The common material of municipal waste can be classified in several different ways, one of most useful classifications is based on kinds.

The researcher used mental maps in detailing and explaining the mother map. In detailing and explaining the mother map, the researcher used mental maps and traditional methods in detailing and explaining the mother map, which includes the eleven types of waste. It is presented in this research as follows:

1) Abandoned Vehicles, Figure-2

Abandoned vehicles are dilapidated cars that have become useless in other ways, and that have been abandoned and dumped illegally in the environment. Abandoned vehicles take up space in the environment and, like other waste, pose significant risks to public health. Abandoned vehicles left in the environment are ugly and affect the visual comfort of the area. In addition, components that deteriorate and leak, such as oil and battery acid, pollute the surrounding environment and can cause a threat to the health and safety of people and animals. Abandoned vehicles harboring pests such as mice also provide that disease spread.

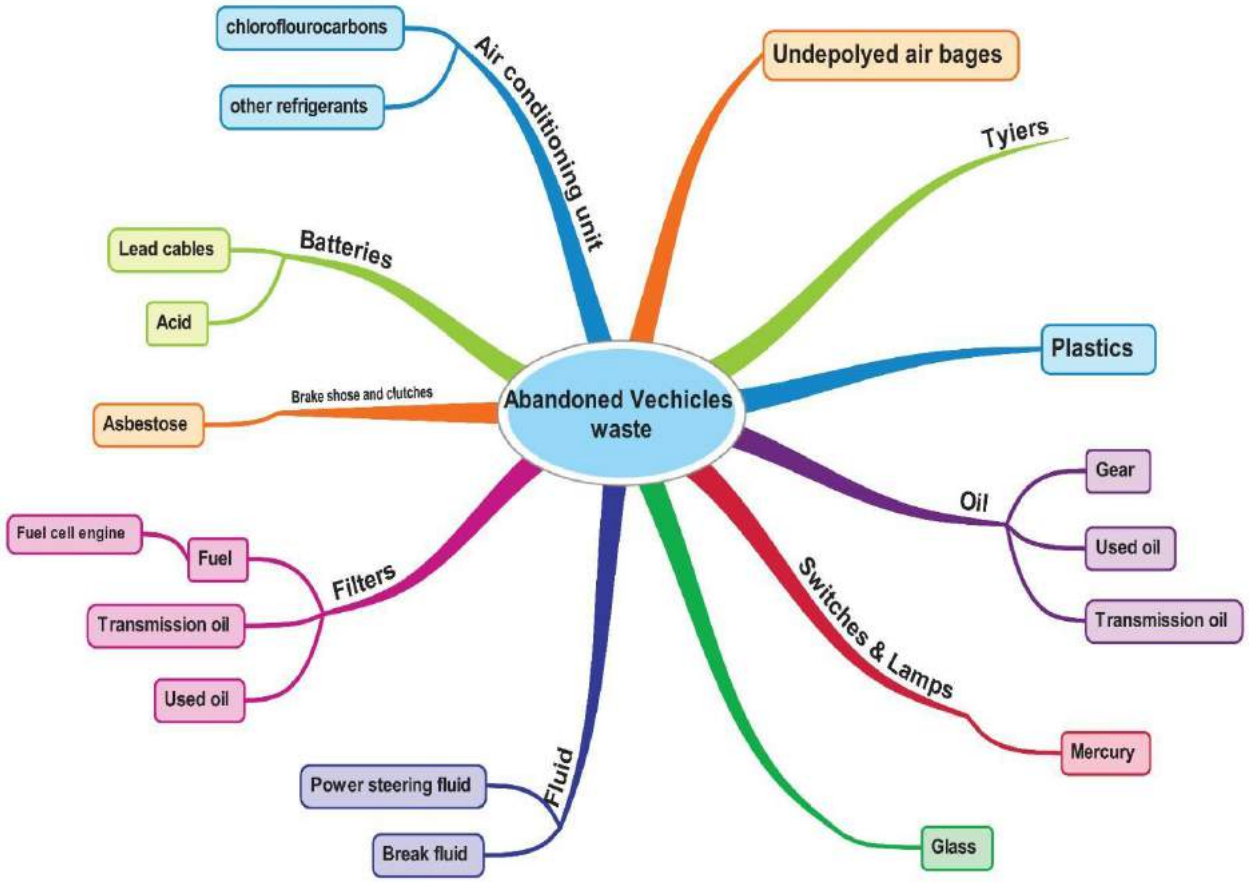


Figure-2: Abandoned Vehicles

2. *Agriculture Waste, Figure. 3*

Agricultural waste is generally defined as everything that is produced accidentally or secondary during the production of crops in the field, whether during harvesting or during the preparation for marketing or manufacturing of these crops and animal and poultry waste before slaughter or during slaughter operations and during the manufacturing processes and preservation of the products of these animals and poultry. As for the plant residues in the agricultural sector, they are the remainder of the agricultural crops. Agricultural work includes inorganic waste, including plastic sheets, plastic containers, pesticides and their packaging, and tools used by the farmer.

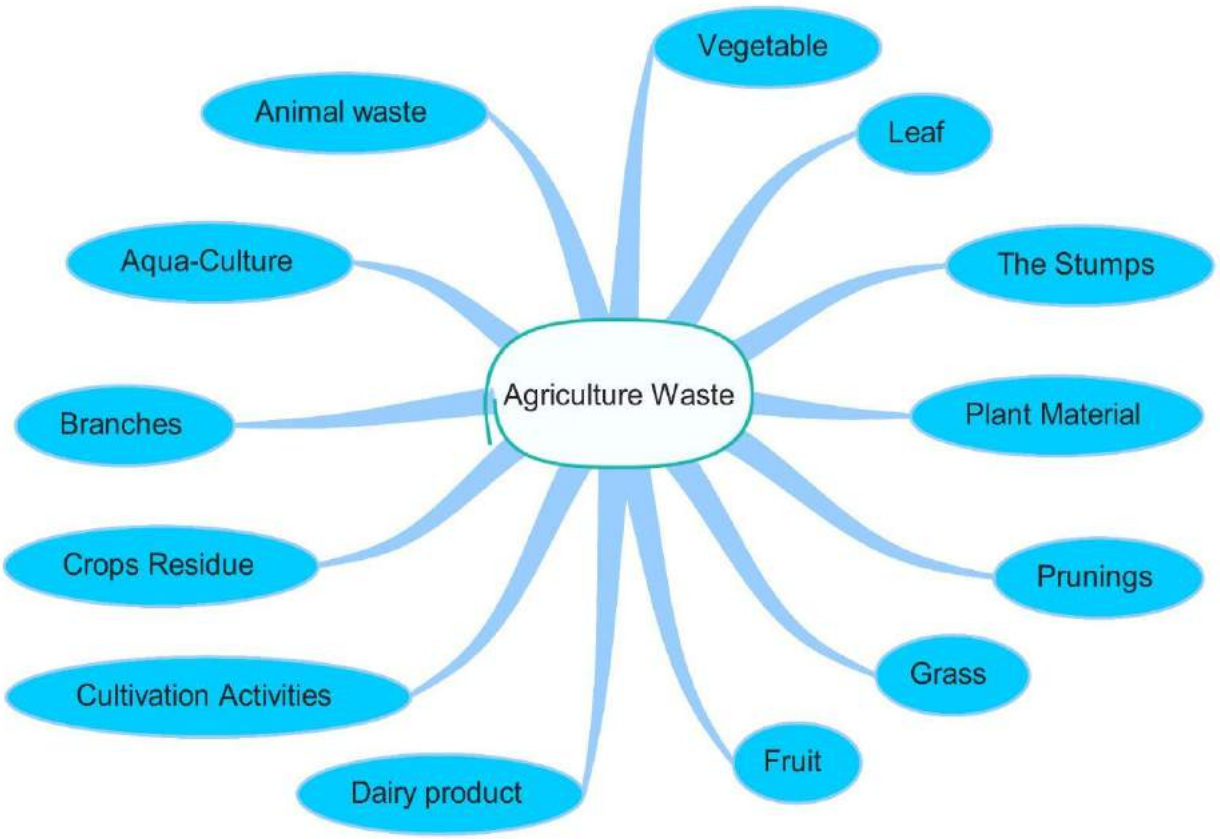


Figure-3: Agriculture Waste

Agricultural waste is by-products within the agricultural production system - (whatever its source is home, school, public gardens, forests, street afforestation, agricultural industry residues, constitute a significant proportion....), that must be maximized by converting it into organic fertilizers, fodder, human food, clean energy, or manufacturing to achieve agriculture. Clean horizontality, environmental protection from pollution, improvement of agricultural products and employment opportunities in the agricultural sector, thus improving the economic and environmental situation and raising the health and social level in the countryside.

3) Ashes

Ash is all that remains after the materials are completely burned inside the ash furnace at a temperature ranging from (525-650) °C, or it is the incombustible material that remains after the organic matter has completely burned.

The term ash is used to refer to the inorganic materials remaining after burning the organic matter in food at a high temperature ranging between 500° and 600°. As for the minerals that make up this inorganic residue, they are present in the form of oxides, sulfates, phosphates, silicates and chlorides (called ionic ash) and they depend on the composition of the food and the conditions of burning. Sources, ash is one of the largest types of industrial waste generated.

4) Construction & Demolition Waste, figure.4

This type of waste includes all the waste produced by the construction and demolition for all buildings and infrastructure, as well as road planning and maintenance operation. Demolition wastes are heterogeneous mixtures of building materials.

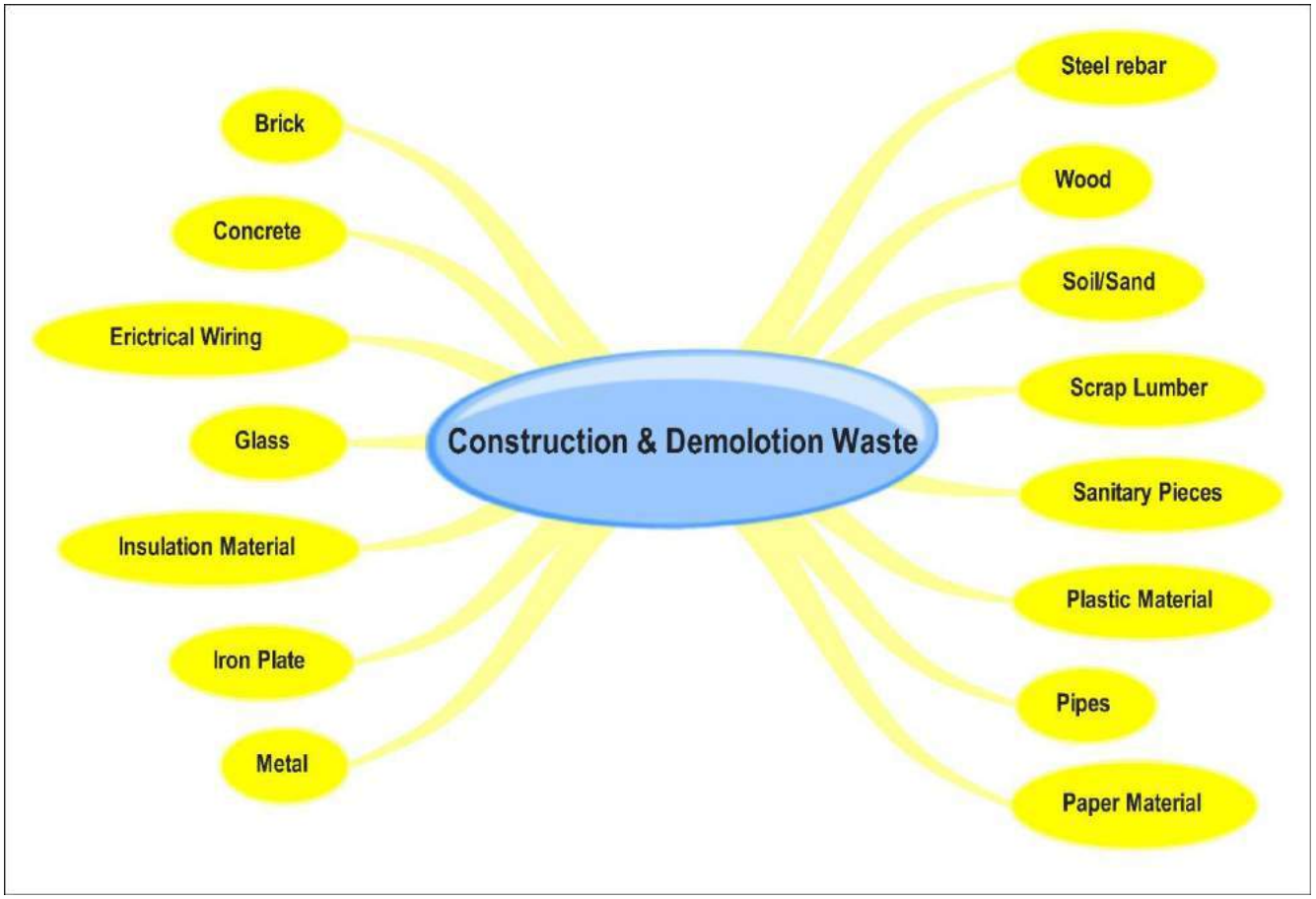


Figure - 4: Construction & Demolition Waste

Construction & demolition waste is the non-hazardous solid waste that is generated from the activities of demolition, construction, construction of projects, development and restoration. The construction and urban expansion processes generate millions of tons of construction waste, including (asphalt - ordinary concrete - reinforced concrete - bricks - wood - glass - iron - Aluminum - Electrical cables and wires - Plastic tubes)

These wastes are often disposed of in landfills without treatment, with what this leads to an increase in the level of environmental pollution and a waste of usefully exploitable resources.

5) Dead Animals

The meaning of carcass refers to: the body of a dead animal, including its blood, skin, visceral organs, head and feet, etc., as well as fish that are not fit for human consumption. Animal carcasses and body parts are in most cases disposed of as infectious waste and hazardous waste. The most important health and environmental damage caused by throwing slaughtered remains in the streets:

I. Dumping this type of waste attracts insects and rodents, which usually carry with them various types of diseases, and thus transmit them to humans.
II. Carrion emits methane, in addition to the unpleasant odors resulting from its putrefaction, it leads to pollution in the air we inhale, and causes many chest and respiratory diseases.
III. The decomposition of the remains of slaughtered animals and their mixing with the soil, which may lead to an environmental imbalance and pollution of groundwater.
IV. Throwing slaughtering residues into water bodies, polluting sea water and harming the water balance and marine ecology.

6) E-Waste, figure.5 & 6

We can define electronic garbage as garbage that consists of electronic scrap and all kinds of electrical and electronic equipment or its components and parts that are disposed of due to the end of their useful life.

The danger of electronic waste lies in its parts and components that have a significant negative impact on the environment and then human health, and is mainly related to the heavy metals that it releases into the environment. Likewise, the plastics that make up the covers and other parts are also a source of pollution.

Heavy metals from e-waste such as lead, cadmium, arsenic and mercury cause serious human health problems. Also, the dioxins released by plastic materials have a negative impact on environmental and human health.

As shown below in the e-waste component parts mind map figure.5 and e-waste composition parts mind map figure.6.

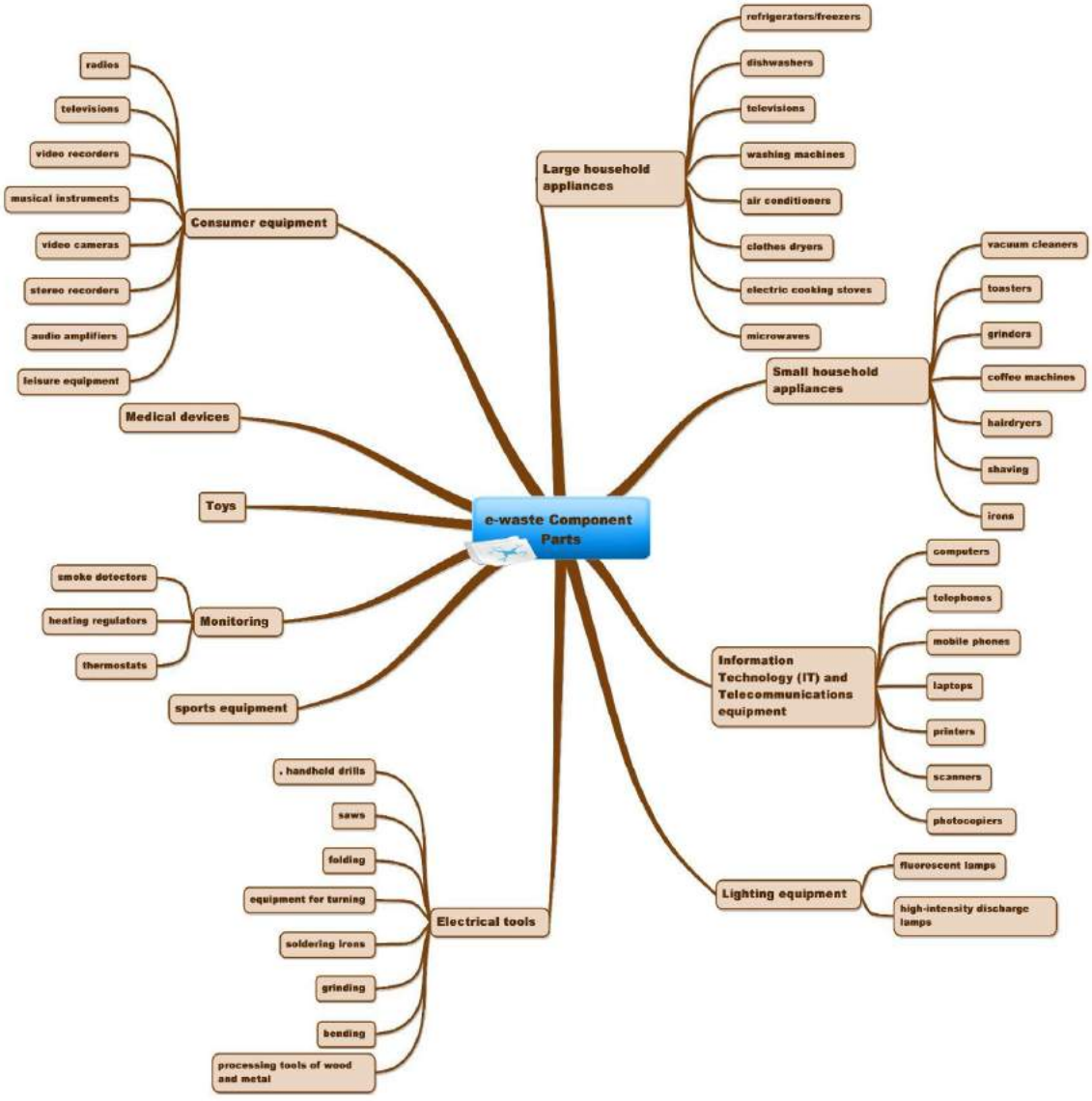


Figure-5: E-Waste component parts

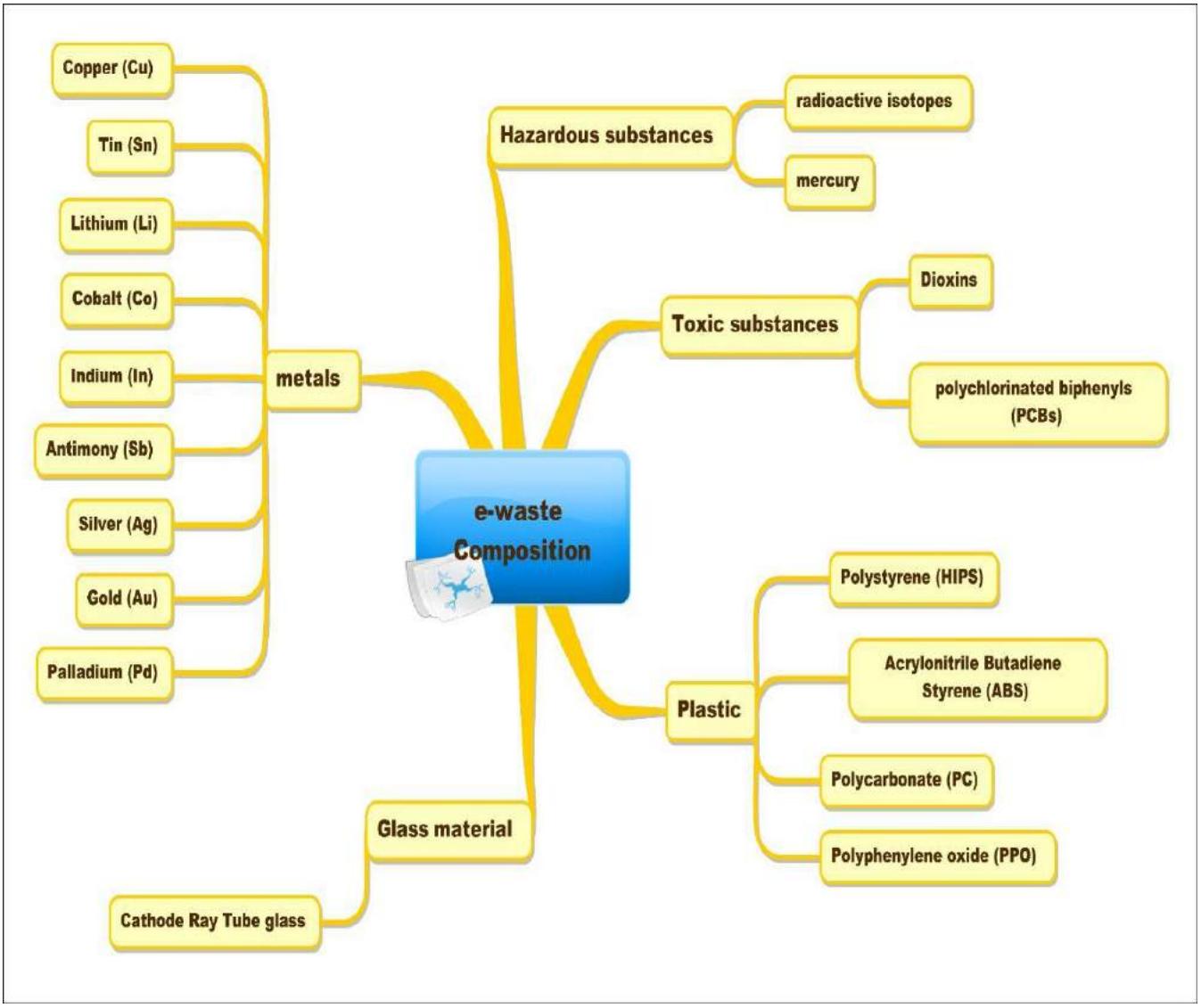


Figure 6: E-Waste composition parts

This type of waste is a growing problem in today's technology world. E-waste is one of the fastest growing categories of household waste in the world, according to the United Nations health agency.

The Global E-Waste Statistics Partnership (GESP) said that of the 53.6 million tons produced worldwide in 2019, only 17.4 percent were disposed of and managed in an environmentally safe manner. This confirms that the fate of the remaining e-waste is unknown, and it is unlikely that it was managed in an environmentally safe manner.

An alternative to reducing e-waste is reuse and recycling so that electronic devices can be reused or reusable parts removed. Moreover, this equipment can be recycled to obtain metals and plastics as raw materials.

We can say here that “electronic waste is a mine of natural minerals” as it contains minerals that are expensive to extract from their natural sources or cause undesirable and costly environmental effects, and these elements can be recovered in addition to rare elements such as the so-called “rare earth” -a group of 15 elements- used in the manufacture of mobile phones.

Recycling methods depend on the type of electronic device and what you want to recover. It can range from disassembling and cutting parts manually or with a specialized robot, to undergoing liquid nitrogen cooling and crushing equipment.

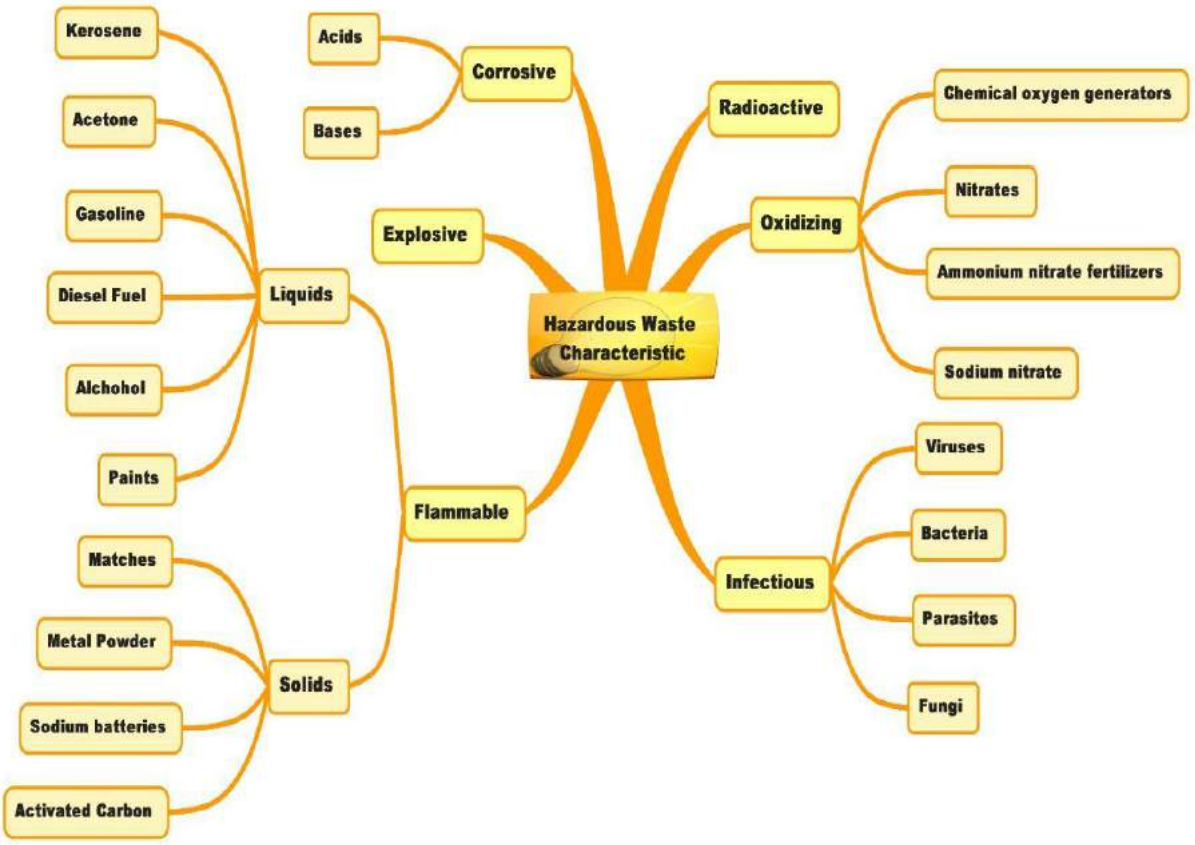


Figure-7: Hazard Waste

Hazardous waste is waste that has a negative impact on humans, living things or the planet - water, air and soil - as a result of its high toxicity or lack of decomposition after being thrown over time and then accumulating in the tissues of living organisms. We can also define it as waste resulting from industrial, medical and agricultural activities, and because of its quantity, concentration, physical, chemical or biological properties, it poses a threat to human health, environment, living organisms and public safety, waste that is difficult to handle, store, transport or treat again.

Hazardous waste is divided into types, as shown in the Hazard Waste mind map, Figure -7 such as radioactive or highly flammable waste, explosive materials, chemicals and biological waste, in other words, the hazardous waste bears one or more of the following characteristics, which are toxicity, oxidation potential, explosiveness and radiation.

It is flammable, contagious, pathogenic as well as corrosive. Hazardous waste comes from main sources, which are some power plants, health facilities, some industries and farms, and the most prominent components of this waste are heavy metals that are used in several industries, including the production of electronics, paints, metal formation, cars, etc., and volatile and flammable chemicals such as organic solvents and reactor waste. Nuclear waste from hospitals, clinics and health centers.

The optimal disposal of hazardous waste depends on several methods based on ensuring that these

wastes do not reach any of the components of the environment from soil, surface and ground water, or to the atmosphere. With an emphasis on minimizing use and using a safe alternative. Societies' familiarity with the developments and increase in hazardous waste has become a necessity, not for coexistence, but rather to prevent tampering with the environment and human health. For example environmental awareness of radioactive waste, use of radioisotopes in laboratory analysis of body tissues and fluids, in vivo organ imaging, treatments and many more clinical studies involving specific radionuclides need special management in a centralized radioactive waste treatment facility. Nuclear applications have developed rapidly in recent times, and many nuclear power plants have started operating all over the world. The potential impact of radioactive pollutants released into the environment has received increased attention due to nuclear accidents. Pollution of soil and water with radionuclides due to processes, global fallout from nuclear weapons tests, discharges from nuclear facilities, disposal of nuclear waste, and accidental nuclear accidents (e.g., Chernobyl in 1986 and Fukushima in 2011) lead to serious problems for biological systems. It is necessary for modern societies to realize that they deal with hazardous waste in parts and components of what they use daily, and herein lies the danger of the continuous use of small parts that will lead over time to large accumulations. We refer here to mercury, a persistent toxic substance that threatens human health and the environment. Mercury is one of the most important pollutants in many wastes that contain it, such as: [batteries-Detergents and detergents-Metering devices-fluorescent lamps-Specialized lamps-Switches, relays and sensors- thermometers-thermoelectric devices-thermostat sensors-electric switches,- manufacture of electrical equipment-manometers-barometers and vacuum gauges]. Mercury compounds used in metal finishing: (chloride - sulfate - nitrate - cyanide - oxide – dichromate) mercury. Raising the level of societal awareness requires building an integrated system of facts about what is contained in the waste of modern societies, by all available methods.

8) Organic Waste

The concept of the word organic has different interpretations from multiple angles: Organic in the field of chemistry is the formation of the compound from carbon, hydrogen and oxygen. Organic in biology and the environment is the living substance that consists of units that were living, as in humans, animals, plants and microorganisms. Therefore, the concept of organic waste is the excess and unwanted organic waste or waste “lignocellulose” resulting from all agricultural activities or from agricultural manufacturing processes or from animal husbandry or food waste from homes and restaurants “free of any extraneous materials such as metals, plastics or Glass or chemical compounds” and the percentage of these wastes constitute more than (60%) of the total general waste. We hope everyone has a good understanding of organic waste. Organic waste is a biodegradable material. It can also be referred to as wet waste. Organic waste can be divided into three categories, namely, "industrial organic waste", "agricultural organic waste" and "household organic waste", according to its source. The value and benefits of organic “agricultural” waste: These wastes are characterized by being rich in nutritional value (protein, carbohydrates, fat and many salts, acids, mineral elements and vitamins), so they are considered a good source in their raw form in their manufacturing processes to (feed or silage) used in feeding farm animals and birds or in the production of fertilizers And high quality organic soil.

The importance and benefits of using various mixed organic wastes: Agricultural waste is used with animal waste and food waste from homes and restaurants (which is subject to a deliberate and special treatment different from the rest of other organic waste) in the production of many products, which are fish feed and “organic soil & fertilizers of plant origin” Fertilizers” due to its high organic matter percentage. Through special treatment before manufacturing operations, many

factories have been established in several countries for the manufacture of fertilizers and organic soils from these wastes. They were excellent and profitable projects, and their products outperformed imported soil and organic fertilizers. This waste is also defined as biodegradable such as food and garden waste, paper, cardboard, textile wood, etc., which decompose over long periods of time by various aerobic and anaerobic bacteria to produce the liquid leachate. Biodegradable waste can be found in municipal solid waste (sometimes called biodegradable municipal waste, green waste, food waste, waste paper and biodegradable plastic). Other biodegradable waste includes human waste, manure, sewage, sewage sludge, and slaughterhouse waste.

9) Rubbish Waste, Figure-8 & 9

Communities need to learn about the type and characteristics of the waste inside their disposal bags, ideas on how to store it and reduce waste, and details about what to do with specific types of waste. These things should be put in another bag and another place that is more useful and safe for the environment and human being. And dealing with them is that they are not expired materials, but rather they are raw resources for new industries. Garbage is generally divided into different types, and it is necessary for society to know what accumulates in the yard or rooms of the house, warehouse, work or market, because this will affect how it is disposed of later. To simplify the issue of garbage, it has been divided in this research into two main types: combustible and non-combustible garbage. The mind map at figure-8 represents of the contents of the trash branches of each type.

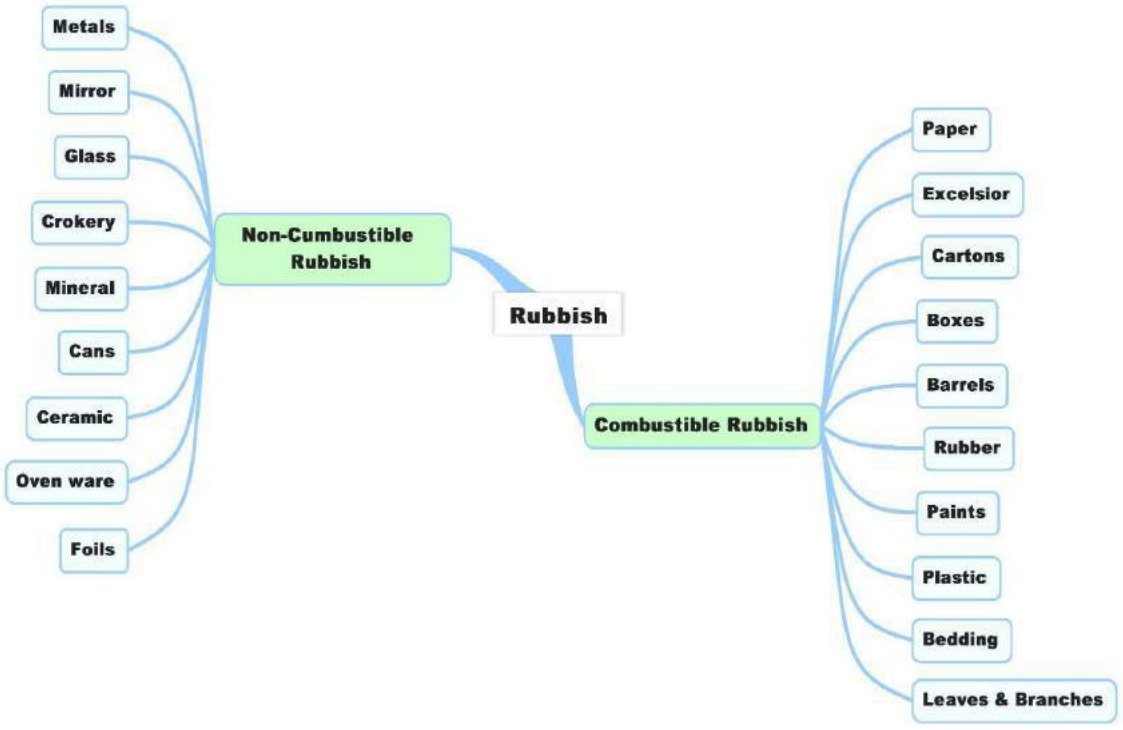


Figure-8: Rubbish Waste

Through the mind map above, we can detail rubbish waste includes garbage, mostly material such as glass, paper, cloth, wood, biodegradable food, or various metals, and a lot of daily consumables from different sources such as household waste, markets, schools, institutions, hospitals, universities. The researcher seeks to simplify information about the characteristics and components of rubbish for society. The division of

waste into combustible and non-combustible concept is more simple and accepted by society.

The importance of the topic lies in presenting scientific facts and statistics to the community during awareness raising. According to the statistics of the Ministry of Municipality in the State of Kuwait, which were published in "1st KISR / Italian – Joint Workshop on Waste Management – Operational Excellence in Waste Management Research – Book of proceeding "In cooperation with Kuwait Institution for Scientific Research. It indicates that by 2025 the urban population will reach 3.9million and municipal solid waste generated 2.0 (kg/capita/day). In addition, the statistics indicated that the waste composition by category by 2025, it will be as shown in the following table -1:-

Table 1: Waste Composition by Category

Waste	Concentration	Amount of Waste, (t/y)
	(%)	2025 Expected
Sanitary	6.3	182700
Paper	6.8	197200
Corrugated	8.3	252300
PET bottle	7.3	211700
Film	11.04	320160
Organic	44.2	1281800
Metals	4.5	130500
Glass	6.3	182700
Wood	4.2	121800

These studies emphasize the need to raise awareness of the components and characteristics of rubbish waste, It may be necessary to understand rubbish waste "paper, plastic, and metals" as one of their multiple and daily uses. Plastic is one of the most waste. Unfortunately, we are now paying for this artificial creation and will be for the foreseeable future. Because of the creepy nature of plastics, they're supposed to be in every food we eat, in our water, and in the air we breathe. We are exposed to plastic every day. However, even if all the plastic is prevented from entering the environment immediately, we will see an increase in micro plastics as the larger pieces begin to break down into fragments. We do not always know what products are made, whether they are made entirely or partially of plastic; For example, cigarette butts, diapers, shoes, and bags. Products like these consist of several interconnected materials, and therefore, there is difficulty in breaking them down for reuse or recycling.

Paper is a thin, flat material produced by compressing fibers that are usually natural and found in the walls of all plant cells so that it is composed primarily of cellulose. Paper waste occupies the first place over the rest of the waste in people's homes. The danger of this type of rubbish waste it produces methane when it decomposes. Because paper fibers contain carbon (originally absorbed by the tree from which they were produced), recycling keeps the carbon locked up for longer and out of the atmosphere. In most countries, waste paper is now recovered and recycled, and although not all of it may become new paper after repeated processing, the fibers become too short to produce new paper - which is why virgin fibers (from sustainably farmed trees) are added to the pulp recipe. However, the desire is still urgent to reduce the use of paper (bags - boxes - newspapers and magazines - cartons - and many daily uses) and recycling.

Awareness of the negative effects of high levels of consumption and paper waste is a very urgent necessity. That's because the life cycle of the paper industry from start to finish, begins with the cutting of the tree and ends its life, upsetting the carbon dioxide balance in the atmosphere. It ends with the manufacturing processes of paper that release nitrogen dioxide, sulfur dioxide and carbon dioxide into the air, which contributes to pollution such as acid rain and greenhouse gases. Hence the high pollution of water and air, and the consequent increase of water use by these industries, the clear cutting of trees, the consumption of fossil fuels, the emissions of greenhouse gases in the environment and the toxic bleaching products excreted.

Plastic is a human-made problem, not only that, there are some types of plastic contains additives to strengthen them and help them last longer, this means they can take much, much longer to break down. With this in mind, it is clear to see why we need to find a solution for plastic waste and why it

is so important for us to find reusable alternatives. So we need to take responsibility and start reducing its use in sourcing. Our response over the next two decades will determine the outcome of the plastic crisis. We know that the current approach is not enough. Taking advantage of our current options and significantly expanding our recycling range from the current average will help reduce the increasing waste tonnage.

Metals are essential and versatile and can be used in many ways, as metal can be used for industrial purposes such as aluminum in the manufacture of trucks, cars, planes, ships and railways, and can also be used to manufacture household items such as cutlery and even in packaging, aluminum foil and soda cans, as well as round paper clips, used staples, and metal columns from folders and files. It also contains office chairs, old file cabinets, and lights, copper in making wires to play its role in conducting electricity, brass, which is a mixture of copper with zinc, and it is a flexible, non-flammable metal, and is used in the manufacture of steel hammers, decorations as well as antique furniture , including doors, that most electrical devices, such as mobile phones, where mobile batteries are made of cobalt metal, and the mobile depends on 6 components of rare metals, and rare metals are used in the manufacture of coils and electrical wires that are inside electrical tools, thanks to their great conductivity of electricity, as no Electrical tools are devoid of terbium, neodymium, or europium metal, as it is thanks to the metal that computers and screens have become flat, and metals are used in the manufacture of modern home medical machines such as body temperature measuring devices, blood glucose meters, blood pressure and oxygen ratio, not We can limit the uses here. But the good thing about metal recycling is that the metal can be recycled over and over again without changing its properties. According to many studies, metals can be recycled over and over again without losing their properties. Steel is the most recycled metal on the planet and includes highly recycled metals such as gold, silver, copper, gold, and aluminum. The first goal is to preserve the environment and natural resources as it requires less processing power to manufacture new products using raw materials. Metals can be classified into ferrous and non-ferrous - as shown in the figure-9, Metal classification. Awareness of this waste is a key factor to stop immediately throwing it in household garbage bags, and separate it from its source, and the process of metal recycling refers to the organized collection of different metals at the end of their life, and sorting them according to the type of metal and quality. This step is followed by processing, purification and finally making new products.

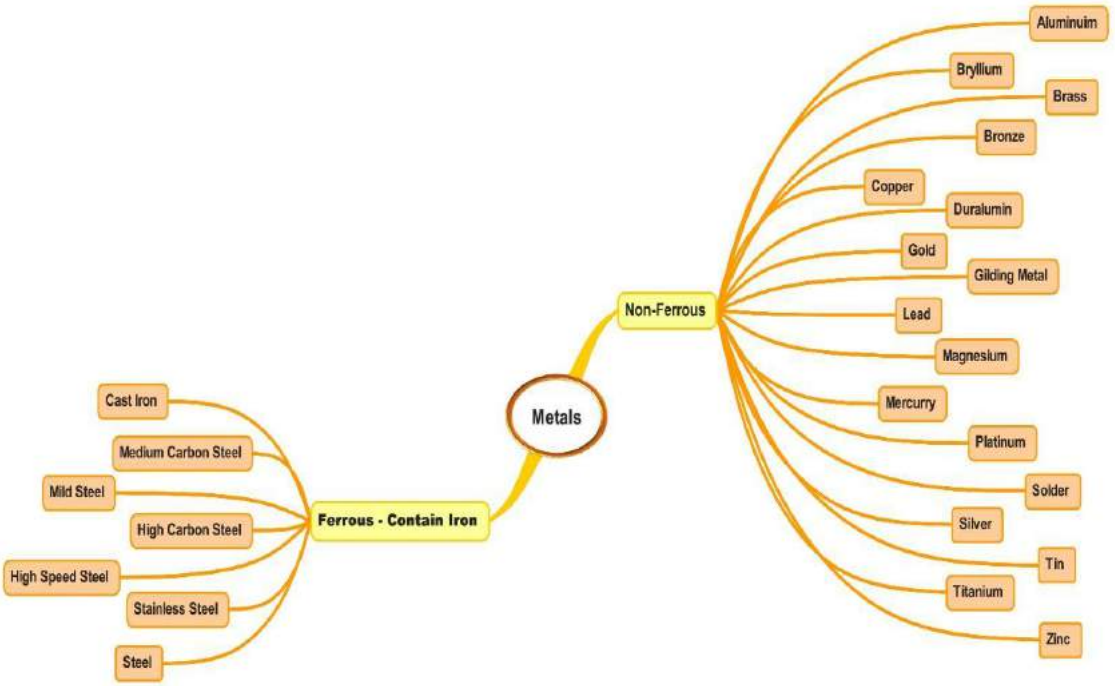


Figure-9: Metal classification

10) Sewage Treatment Residue

The issue of sewage is very necessary. Society must be made aware of the dangers of throwing all liquids, cleaning materials, oils and chemicals into sewage holes, whether in homes, salons, laboratories, garages, markets, offices, in all sources of this waste. That's because the wastewater treatment process produces a residue called sludge (or bio-solids) residue accumulated in wastewater treatment plants. Wastewater sludge is the residual solid or semi-solid material or slurry produced as a by-product of wastewater treatment processes. Here we refer to some of the main trace elements in sewage sludge: Nitrogen - Phosphorous - Potassium – Calcium-Magnesium - Arsenic – Cadmium - Chromium - Copper - Mercury - Molybdenum - Nickel - Lead - Selenium – Zinc-. Sludge pollutants include pathogens, toxic chemicals, dioxins, furans, flame retardants, metals, organochlorine pesticides, 1, 2-dibromo-3- chloropropane (DBCP), naphthalene, triclosan, nonylphenol, phthalates, nanosulfur and thousands of other substances.

Systematic and continuous community awareness will inevitably lead to the success of the waste management project.

V. RESULT AND DISCUSSION

The researcher used in a seminar entitled "Waste between Reality and Hope" at the center of a women's association for the public benefit.

In this research, he presented a study of a statistical questionnaire survey to measure the reactions about the use of mind maps in environmental awareness about waste. The questionnaire questions were as shown in Table No.: 2 which were designed for this study.

The number of respondents (64) included in this study was considered as a representative sample. Data collection was based on a paper questionnaire. Excel was used in the statistical analyses.

Table-2: A questionnaire survey of attendance was also applied to determine the most important results.

*Q	survey questions
Q_1	Age group
Q_2	Education level
Q_3	Occupation
Q_4	"Waste is a natural matter and there is no consequential harm to humans." Do you agree?
Q_5	Have you discussed this topic with friends and colleagues?
Q_6	Have you heard about the economic importance of your daily waste and that it has commercial or industrial value?
Q_7	"Establishing collection centers in residential neighborhoods to receive recyclable materials." Do you support this idea?
After this seminar	
Q_8	Have we contributed today to raising awareness of the importance of waste and its components?
Q_9	"I'm going to use mind map stickers"
Q_{10}	You as a citizen, do you have the desire now to be an effective component in benefiting from household waste
Q_{11}	You will apply the concepts of separating, reusing and stopping the purchase of harmful waste

*Q_i = Numbering questionnaire questions

III. DATA ANALYSIS

Statistical resolution analysis

Successful waste management is based on study and knowledge of a key factor that is community awareness and access to actual participation in reducing and reusing waste and separating it from its sources.

In order to find an answer to the previous questions: Statistical inference was performed as an indicator of the variables in the questionnaire data. Attention is focused when dealing with measures of dispersion about measuring the degree of difference between the different values of the quantitative variable being studied, and this is done through several different scales, each one having a measure of the degree of difference from a different corner.

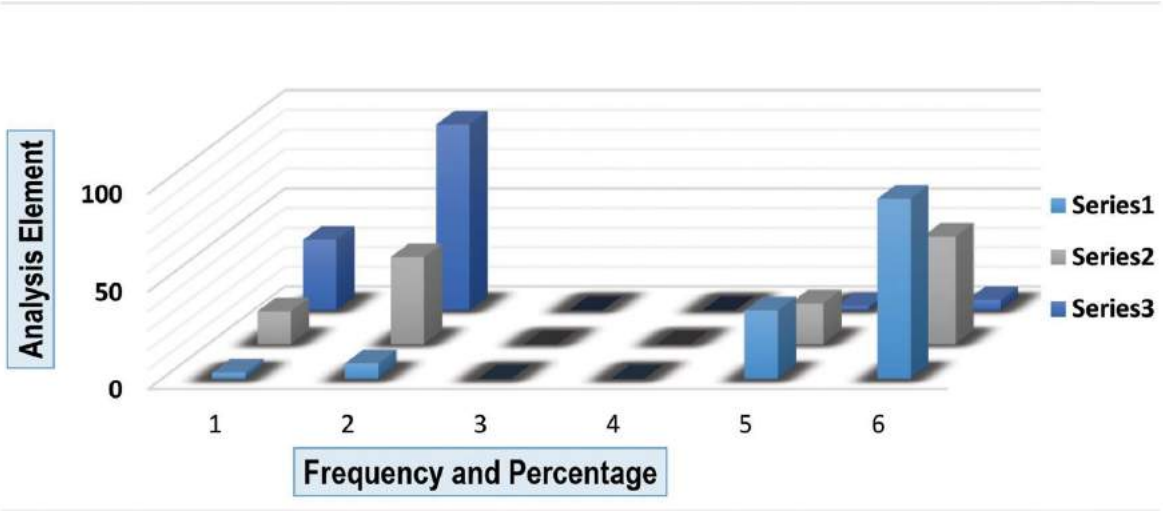


Figure-10: Statistical Inference

To obtain an accurate perception of the properties of the quantitative variable if both the measure of central tendency and the measure of dispersion are available, where measures of central tendency give a perception of the concentration of values, while measures of dispersion give a perception of the degree to which these values differ from each other. Therefore, it can be said that relying on one scale may not replace the other in the process of statistical inference figure-10, as it always results in a deficiency in the information relied upon and thus the inability to read the data statistically properly. Calculating the arithmetic mean figure-13, to express a typical value of the questionnaire data and obtaining a distinctive numerical description to describe the center of values and thus descriptive analysis of the audience's response with the lecturer, and inferring the relationships between the relevant variables in the statistical study. The results were as follows:-

- Focusing on the women's society due to the role of women in the home and their family responsibilities as a mother and wife, in addition to their role in society, has a major impact on the success of the waste management project.
- The average age of attendees was (40-50), which is a good indicator for studying the response and impact of the lecture on a segment that is the most important for the application of the study.
- The educational level and functional diversity of the attendees, a very important measure that confirms that community awareness is not limited to one group without another.
- The coefficient of variation **[**figure-12] in the variable "Question Seven: Have we contributed today to raising awareness of the importance of waste and its components" is the most dispersed variable, as the significant difference between the coefficient of variation is clear. Therefore, attention should be directed to developing and strengthening It should environmental awareness.

Figure-11,Professional Level of Attendance

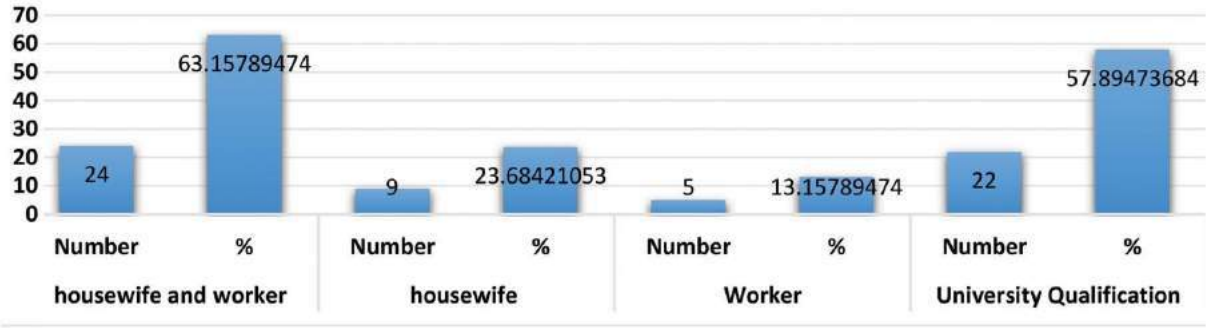
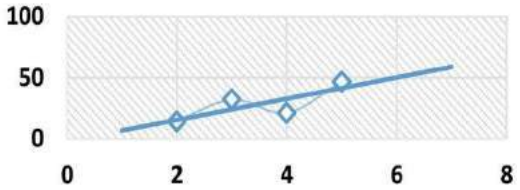
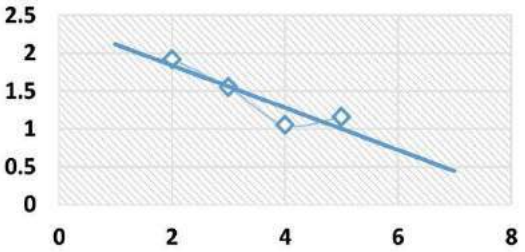


Figure-12, coefficient of Variation



- It should be noted that the summed values and the arithmetic average [figure-13] in the study community, its results indicate that the environmental awareness about the concept of waste is very close to most of the present groups, despite the different specializations and ages, to a degree that may be unnatural, which raises the fear that a stage will come in which the majority of society will become He does not care about the economic importance of waste and treat it as expired materials, if the focus is not on educating the community while continuing to develop this project.

Figure-13,Arithmetic mean

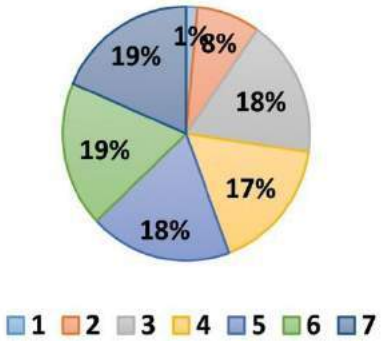


- The standard deviation figure-14, indicates that the level of public response to community participation is that individuals in communities reject the principle of neglecting waste and waste and dealing with it negatively, realizing the dimensions of this problem, and having a desire to change to the best.
- Positive answers to the last three questions (Q_8-Q_9-Q_{10}) [as shown in figure-15] confirm that:-

1. Mind maps are a successful way to simplify and explain environmental information and its circulation among people.
2. Mind maps are an effective presentation tool for understanding and simplifying information, ideas, and projects.

3. The use of mental maps as posters that are viewed daily increases the rehabilitation of the community towards participating in the successful waste management project.

Figure-15, Questionnaire Analysis



VI. LITERATURE REVIEW

We have many studies and researches that dealt with the issue of the success elements of a waste management project and how to sustain it in different parts of our planet. Here we refer to the results of some of these studies:

Justice Kofi Debrah, Diogo Guedes Vidal, Maria Alzira Pimenta Dinis -22 January 2021 Researchers have studied the problem of waste management in developing countries, identifying and analyzing knowledge and awareness of the issue of waste and its management and environmental practices on the topic. The study indicates that the level of environmental awareness of waste management issues is high among young people - high school and university students - and low among the elderly. In addition, the practical application and sound environmental practices still require joint efforts to advance them to better levels that serve the waste management project. The researchers emphasized the importance of adding concepts and practical applications to school curricula and community awareness work in order to raise environmental awareness among the elderly. The researchers stress the need to strengthen the practical and applied aspects of teachers in the field of environmental issues.

Asmawati Desa, Nor Ba'yah Abd Kadir, Fatimah Yusooff -22 November 2012 - Universiti Kebangsaan Malaysia. The UKM researchers studied a waste education and awareness strategy in pursuit of an integrated program for the success of solid waste management projects. The researchers used the questionnaire for first-year students. The results indicated that the level of knowledge, practices and responsibility on the issue of waste management is high. The study confirmed that the university has a great responsibility in the areas of waste awareness and education, and the study added to the importance of developing a strategy that raises the level of education and awareness of waste management in order to change students' habits, behavior and practices on this issue.

Tomáš, Hák, Svatava, Janoušková, Bedřich, Moldan - Prague - (2016). The researchers discussed the need for relevant indicators to activate and evaluate the sustainable development goals on the ground, and to determine the appropriateness of results and quality applications in practice. The researchers emphasized that the sustainable development goals are in fact a policy framework, but their applications are still vague and lack accurate scientific follow-up and scientific expertise to activate them. The researchers seek to prove the importance of establishing a framework for selecting real, realistic and accurate indicators to achieve the sustainable development goals through scientific and research groups, to reach clear facts to ensure that a firm and supportive basis is laid for decision-makers, politicians and the general public about the huge number of desired goals.

Researchers O. Osibanjo and I.C. Nnorom -Nigeria - (2007), They investigated the challenges facing e-waste management in developing countries, their causes and practices of developing countries and shed light on the situation in Nigeria, in addition to that, best solutions and challenges for recycling projects and implementation of a global system of standardization adopting brands of recycled electronics for export Control of Export of electronic recyclable materials (e-Scarp).

VII. CONCLUSION AND RECOMMENDATIONS

Through the research, we look forward to supporting and presenting a national initiative and under the guise of international initiatives related to waste management and environmental preservation. Where public awareness is a critical component of any waste management programmer, because waste is a result of human activities. This research paper has shed light on some of the facts and challenges facing waste education and awareness, and their obstacles. And because the communities will remain in a state of thirst for continuous awareness of the characteristics of waste as an important pillar for the sustainability of the project and cooperation to achieve the principle of the waste management pyramid, which starts from most preferable as follows: using friendly alternative, preventing –reduce- waste, reusing waste, recycling waste, treating waste, and ends with the less preferable which is dumping waste.

Among the recommendations in this research: The projects of community awareness of continuous waste through a scientific system will lead to raising awareness of the characteristics and components of waste and help keep the community motivated to participate and results, by changing the concept that garbage is an expired material to being a raw material for a new product, and an example of this Green waste is a term coined to refer to organic waste that can decompose and has a high nitrogen content. Green waste recycling is an essential activity that can contribute to reducing greenhouse gases in the environment. The recycling of green waste also reduces dumping in landfills, as well as all kinds of waste with its different characteristics can be converted into a new product.

It is one of the most important solutions. First, Design a plan with local and community administrations, including: Providing training on waste reduction, collection and recycling. With the activation of materials to spread awareness about waste. Second, developing educational curricula for all stages to produce generations who understand the size and future of the problem and the importance of actual participation. Third, forming alliances with all stakeholders and initiatives is a prerequisite and mandatory in order to ensure the sustainability of any successful waste management activity. Forth, labeling waste [identifying waste] for its hazardous components, reusing and recycling it, and the importance of reducing its use and disposal. Fifth, create an entity between researchers, technical qualifications and state sectors for waste management.

On the other hand, the desired results are

The first result: Achieving an effective ability to divert waste, recover primary raw materials, and preserve its natural resources through the means that have been developed.

The second result: Sustainable prevention of open burning of waste through a successful project of waste management and monitoring of municipal landfills.

The third result: an effective transition from waste disposal to safe alternative use - reduce - reuse - recycle - treat - recover resources.

The fourth result: Reduce waste storage.

The fifth result: Enhancing environmental behaviors that contribute to the success of the waste management project are: Using an environmentally safe alternative - environmentally friendly - recycling, reusing and reducing waste before it leaves its primary source.

The sixth result: A societal commitment to practices for environmental sustainability and access to zero waste as well as zero landfills. The trend towards a zero waste approach may be a key

measure of the success of a waste management project and ensuring environmental sustainability.

The seventh result: The actual trend towards a 'closed loop' system for sustainable waste management.

The eighth result: the development of educational curricula for all levels of education - theoretically and scientifically - and preparing for a generation that deals with waste as raw materials for new industries and instilling the concept that the life of recycling and environmental practices is longer than the life of landfills. In addition, it protects the natural resources of our planet.

The ninth result: Providing protection for human health and the environment, and protecting them in li ht of industrial develo ment.

ACKNOWLEDGEMENT

I must thank my respective family for their unending support, and encouragement and apologize for the many missed dinners.

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