

# FINAL

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1. ) What are the Four Major Environmental Threats (according to Avlonas and Nassos)?
- a) How do they relate to each other? The four major environmental threats are water issues, climate change, air issues and land and waste pollution. The relation between these four is that they are major threats to humans which limit existence and cause health issues.
  - b) Which of the threats drive the development of the other threats? Climate change and air issues are the two threats that lead to the development of other threats.

An international food company has over \$6 billion in annual revenue. Its major products are fresh and packaged fruit and vegetable products sold worldwide. Products include bananas, pineapples, dried and frozen fruits, gelatin/fruit ready to eat products, packaged salads, juices and related products. It owns its own plantations in South America (accounting for 35% of their product) and also contracts with other growers for the remainder of its supply chain (accounting for the other 65% of their product). They also own a fleet of over 20 refrigerated barges to transport their foods worldwide.

You have been hired to provide recommendations to the company for ideas to conserve water and reduce its water footprint.

- a) Describe in detail **two or more** of the best recommendations for the company to reduce its water footprint. Use of new technology. Technologies adoption in the company will help in water reduction. Replacing the company water outlets with efficient equivalents will enable reduction in use of water. Engaging suppliers on water management is another recommendation. This will lead to development of ways to reduce water consumption with a consideration of quality.
- b) For each recommendation, specify what component of the water footprint does it affect (i.e. green, blue, gray).

Technology will affect grey component which is contaminated by chemicals. Engaging with suppliers will affect blue water supplied to the company using artificial piping.

- c) For each recommendation, specify the watershed in which the impact of the recommendation will be realized (i.e. local or global). Suppliers' engagement and technology use will affect both local and global areas as the company operates in a national and international level.

An international clothing-retailer company sells over \$15 billion in revenue per year. It operates over 5000 stores world-wide, including several different "concept stores", targeting specific fashion markets (i.e. young professional, students, children adults, rock culture, etc.) The company contracts separately with its suppliers who are located all over the world, primarily in inexpensive labor markets. Approximately 20% of its sales are internet sales. Products sold on the internet are delivered both directly and through its brick and mortar outlets.

The company has hired you to provide recommendations for its Extended Product Responsibility (EPR) program.

- a) Describe in detail **two or more** recommendations for the company to improve its EPR program.

To improve the company EPR program, the two recommendations are research and development and an analysis of the trends in markets. Research and development will enhance an understanding of the raw materials to include in making concept stores leading to desired products. On the other hand, when it comes to market trends analysis, there will be a focus on the current customer needs leading to satisfaction as there will be guaranteed availability

- b) For each recommendation, describe what public policy initiatives (if any) need to be developed in the market countries/local governments to facilitate these recommendations.

The public policy that need to be made in the tow recommendation are promotion of a culture of people which will lead to appreciation of traditions hence clothing manufacture related to traditions. This will hence lead to an increase in sales overall.

- c) For each recommendation, describe what implementation system is employed to implement the recommendation.

To implement research and development, the company should allocate resources and funds which applies to market trend analysis too. Through availability of resources and acquisition of knowledgeable stuff, the company will enhance a successful implementation leading to success.

- d) For each recommendation, describe any technical limitations that will limit extent of the program.

Research and development is limited in terms of accessibility and occurrence of errors leading to wrong results. Secondly, resources might be exploited hence failure to attain the relevant results required.

An integrated power generation and distribution company, located in the Midwestern United States, owns an electrical generation capacity of approximately 6000 MW. Their generation fleet capacity breaks down as follows:

- a) Coal - 2400 MW
- b) Natural Gas (without carbon capture) - 2400 MW
- c) Nuclear – 600 MW
- d) Wind – 600 MW

You have been asked to recommend a strategy for their future development of electrical generation capacity, in order to achieve an 80 % reduction in carbon footprint by 2050.

- A) Recommend a projected generation fleet mix with a 2050 capacity by type of generation (i.e. coal, natural gas, nuclear, wind, hydroelectric, solar, etc.)

The best generation fleet mix that will reduce the carbon footprint in the company is a combination of wind, nuclear and natural gas.

- B) Specify the recommended 2050 capacity for each type of generation in the recommended generation fleet mix.

The generation fleet mix at the company will constitute natural gas at 30%, wind at 30% and nuclear at 30% while the rest will constitute coal.

- C) Specify whether or not carbon capture technology is projected to be installed on the above facilities by 2050.

There is an expectation of capturing carbon technology installing but at a low percentage to reduce carbon footprint effectively. However, this will only cater for any emergencies once they occur.

- D) Give your future economic assumptions (i.e. Do you predict low or moderate renewable energy costs, do you predict low or moderate natural gas costs, etc.)

I predict moderate renewable energy costs. The main reason behind this is because the company has put much efforts to curb the carbon footprint through investing heavily in renewable energy sources as they will lead to efficiency.

- E) Do you think the government will need to provide economic incentives (i.e. carbon taxes, or carbon cap and trade systems, etc.) to make such a transition economically feasible?

In my own opinion, I think the government will provide incentives economically. The need to reduce carbon footprint overall is both a concern for companies and government overall.

A privately owned sausage factory has a restaurant attached to the factory. They have hired you to recommend a recycling program for their business to reduce their waste disposal costs. Their current waste mix breaks down as follows:

- a) 23% sausage cut-offs and sausage skins
- b) 20% used restaurant paper products
- c) 7 % food waste from the customers' table
- d) 11% food preparation waste
- e) 10 % mixed waste from various trash receptacles
- f) 7 % metal food supply containers
- g) 8 % plastic food supply containers
- h) 14 % cardboard boxes

Recommend what you believe to be the most **three** most successful potential recycling strategies for the company. These recommendations should target the highest volumes of diverted wastes and the most cost-effective strategies.

- A) Identify the waste types that you recommend be recycled.  
The waste types that need recycling are metal food supply containers, plastic food supply containers and used restaurant paper products.
- B) Identify how each waste type will be collected  
The mode of collecting the three waste types to be recycled will be use of technology and human knowledge that will overall lead to success in recycling.
- C) Identify what technologies will be used to recycle each waste type  
Clean and clear, rolling up sleeves and quick learner are the most effective methods that will be used in recycling waste products.

Compare Water Footprint and Carbon Footprint measurements.

- a) How are they the same?

Water and carbon foot prints are similar in that they complement each other as they address issues in the environment mainly change in climate and scarcity of fresh water

b) How are they different?

The differences seen the two are that carbon footprint measures greenhouse gases anthropogenic emission while water footprint measures freshwater resources by human appropriation in terms of water consumed and polluted in volumes.

c) How are they used by companies to make decisions to improve their businesses?

Carbon and water footprints are used by companies in business decisions improvement by making sure their levels are low to enhance life sustainability by creating a conducive environment to live in.

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