

Environmental Science and Technology

Assignment - 3

CARTOON

Depiction of Environmental Issue

TOPIC:

Air Pollution - Decline in Air Quality

Link to Image: <https://drive.google.com/file/d/1IEWKXbefZlfrT0dqzJPzfBEzeF2SK8EZ/view?usp=sharing>

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AI - Artificial
Inhalation

NEW DELHI
YEAR: 2054

We've polluted our air
to the point where we
need to breathe like
FISH



THIS is the New Normal
AIR POLLUTION — THIS IS OUR FUTURE

Environmental Issue
Focussed - Decreasing Air Quality

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Explanation: [Above Image Depicts the Cartoon]

The image portrays a poignant scene that **serves as a symbolic representation of the environmental impacts related to the decline in air quality**. It features a young man who has **donned a gas mask as a response to deteriorating air quality**. The gas mask is **equipped with a sophisticated apparatus** designed to address the environmental crisis and alleviate its consequences.

The Gas Mask and Respiratory System:

The central focus of the image is the young man, who wears a gas mask covering his face, indicating the **urgency and severity of the air quality issue**. This gas mask acts as a life-support system for him, ensuring that he can breathe clean, filtered air. It symbolizes the necessity for individuals to protect themselves against air pollution and the deteriorating air quality.

The Cylinder with a Plant:

Attached to the man's back is a cylindrical structure filled with soil and housing a robust plant. Its presence represents the potential for nature to help counteract the negative impacts of air pollution. The **plant acts as a biological air purifier**, absorbing pollutants and releasing oxygen, effectively transforming the air quality within the mask.

Water Supply Mechanism:

Protruding from the top of the cylinder is a **water container that functions as a reservoir** for supplying water to the plant. This represents the importance of water resources in supporting nature's ability to cleanse the air.

Solar Panel-Like Apparatus:

Adjacent to the water container is a **sun-like instrument resembling a torch**, which emits artificial sunlight. This signifies the importance of light energy and photosynthesis in the plant's ability to filter the air. The artificial sunlight allows the plant to thrive and continue its air-purifying function even when natural sunlight is insufficient due to pollution.

Gas Exchange Mechanism:

The system also includes a **network of pipes connecting the gas mask to the cylinder**. The carbon dioxide (CO₂) exhaled by the person is channeled into the cylinder, where the plant utilizes it for photosynthesis. In return, the plant releases oxygen (O₂), which is inhaled by the person. This highlights the vital symbiosis between humans and the environment, emphasizing that the quality of the air is interconnected with the health and well-being of individuals.

Environmental Impact:

This image serves as a powerful commentary on the dire consequences of air quality deterioration:

Human Health Impacts:

Respiratory Diseases: Prolonged exposure to poor air quality can lead to a range of respiratory diseases, including **bronchitis, asthma, and COPD**.

Cardiovascular Effects: Air pollution is linked to **heart diseases**, increasing the risk of heart attacks and strokes.

Ecosystem Services and Biodiversity:

Air Purification: Deteriorating air quality **hampers nature's ability to cleanse the air**, leading to higher pollution levels.

Oxygen Production: Reduced oxygen production by plants can **strain oxygen availability** for both humans and wildlife.

Resource Dependence and Sustainability:

Water Use: Maintaining air purification systems requires a **steady supply of water**, exacerbating water scarcity issues.

Energy Consumption: Artificial lighting for plants adds to energy demand, potentially increasing greenhouse gas emissions.

Interconnectedness and Feedback Loops:

Ecosystem Feedback: Environmental degradation can set off **negative feedback loops** within ecosystems, leading to further deterioration.

Positive Feedback Potential: Highlights the **potential for positive feedback loops**, where sustainable practices can restore environmental balance.

Urban Planning and Societal Adaptation:

Green Urban Spaces: Emphasizes the **need for green infrastructure in cities** to combat air pollution.

Sustainable Practices: Encourages the **integration of clean energy, efficient waste management and low-emission transportation**.