

# The Importance of Public Knowledge for a Sustainable Environment

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## Abstract

There are a growing number of environmental issues in Indonesia and throughout the globe, and a solution must be found promptly. Environmental issues are gaining growing public attention. This is seen by the growing number of public talks around this issue. The sustainability of human existence on earth will be in jeopardy if a solution to these environmental concerns is not developed. Countries are also becoming more engaged in developing international accords and rules to address different current concerns. The data analysis method employs a systems approach using the Interpretive Structural Modeling (ISM) technique, while the graph depicts an examination of the driving force and amount of dependency to finish the study. The sustainability of human existence on Earth will be threatened if solutions to these environmental concerns are not discovered. This is because nature provides all the necessities for human existence, including air, water, food, medicine, aesthetics, and so on. Natural destruction is equivalent to the carrying capacity for human existence. Conclusion Pollution or environmental pollution is the primary environmental issue. It takes billions of years for air, water, and soil to recover to their natural state after contamination. Changes in climate or global warming. Human activities, such as the generation of greenhouse gases, cause climate change such as global warming. Overpopulation. The population of the globe has reached unsustainable levels due to a lack of resources such as water, fuel, and food. Population growth in both rich and developing nations continues to exacerbate resource constraints.

**Keywords:** *environmental issues, Interpretive Structural Modeling (ISM), growing public.*

## **Introduction**

There are a growing number of environmental issues in Indonesia and throughout the globe, and a solution must be found promptly (Harun., 2021). Environmental issues are gaining growing public attention. This is shown by the growing number of public conversations on the subject. Countries are also becoming more engaged in developing international accords and rules to address different current concerns (Cottafava., 2021). This study uses LCA analysis to monitor potential damage to eco-efficiency (Rosyidah, Andiyan, et al. 2022).

The causes of environmental concerns in Indonesia and throughout the globe. If solutions to these environmental issues cannot be discovered, the future of human existence on Earth will be in jeopardy (Cahyanti., 2017). This is because nature provides all the necessities for human existence, including air, water, food, medicine, aesthetics, and so on. Damage to the environment is equivalent to the carrying capacity for human existence (Moslehi., 2019).

Previous investigators According to the findings of research on power-dependence drivers, 26 factors generate unstable interactions with other variables, and influence feedback may enhance the effect (Sarkar., 2022). The variables relating to the interests of stakeholders in the GMKA area (managers, pilgrims/visitors, and business actors/surrounding communities) predominate, followed by variables relating to funds, facilities, and the management of management, as well as variables relating to the environmental conditions of the area (Bhatt., 2022). Analysis of the hierarchy of factors reveals that the connection between each variable is more of a reciprocal impact than a

relationship based just on level position (Ibrahim., 2022).

The significance of this study Industrialization did not occur instantly. The industrial revolution started in Europe in the 1700s and swiftly expanded to the rest of the globe (Pocol., 2022). During this period, the globe saw a tremendous shift as humans adopted the use of power equipment for construction, manufacturing, and harvesting. Fossil fuels such as coal, oil, and natural gas are the primary sources of energy for machines. Global industrialization is increasing the quantity of carbon and other greenhouse gases in the atmosphere, which contributes to global warming and other negative environmental effects (Dai., 2022). As carbon and other greenhouse gases grow, global temperatures begin to rise, resulting in alterations to global weather patterns, ocean currents, and wind patterns. As a result, we have endured severe weather, heat records, droughts, catastrophic storms, and coastal tsunamis (Islam., 2022).

The negative effects of fast industrialization are most obvious in metropolitan areas. Cholera, typhoid, and other waterborne and airborne illnesses quickly spread (Oyebode., 2022). In many of Indonesia's major cities, unhealthy living conditions and overpopulation endanger public health. Slowly, people are beginning to see the significance of sustainable investment and the protection of natural resources; the economic growth of human civilization can only go so far without endangering human health and exposing it to many dangers (Sarma., 2022).

## **Research Method**

Data analysis technique employing a systems approach with the Interpretive Structural

method Modeling (ISM), with analysis of power drivers and degree of dependency displayed in the driver graph power-dependencies and models structural components to conclude the study findings (Sugiyono., 2017). This study uses descriptive-evaluative research to describe and assess the management structure and environment (Moleong., 2007).

## Results and Discussion

Currently, we are confronted with the following environmental concerns and their root causes:

### Pollution

Pollution or environmental pollution is the primary environmental issue. It takes billions of years for air, water, and soil to recover to their natural state after contamination. The industrial sector and automobile emissions are the primary causes of pollution. Multiple existing contaminants are caused by heavy metals, nitrates, and hazardous plastics. The causes of water contamination include oil spills, acid rain, and urban runoff (Awosusi., 2022). Air pollution, on the other hand, is produced by numerous gases and poisons generated by businesses and factories, as well as leftovers from the combustion of fossil fuels. Soil pollution is mostly caused by industrial waste, which destroys essential minerals and nutrients in the soil. Also its necessary to improve systems for clinical, pharmaco- logical and medical knowledge for viral infection in societies (Setiyowati et al., 2022).

### Figure 1: Pollution



### Climate change

Changes in climate or global warming. Human activities, such as the generation of greenhouse gases, cause climate change such as global warming. The temperature of the seas and earth's surface rises due to global warming, resulting in the melting of polar ice caps and increasing sea levels. It also changes natural seasonal and precipitation patterns, such as flash flooding, heavy snowfall, and desertification. As a consequence of these weather changes, agricultural output often sees crop failures, and the long dry season increases the likelihood of forest fires. To measure and educate public awareness in implementing health protocols, further research is needed (Cardiah et al., 2021).

### Figure 2: Climate Change



### Population

Overpopulation. The population of the globe has reached unsustainable levels due to a lack

of resources such as water, fuel, and food. Population growth in both rich and developing nations continues to exacerbate resource constraints. Intensive agriculture that uses pesticides to improve food production produces new difficulties. The harm consists of deteriorating soil quality and human health. This offers various services like virtual machine, self-service provisioning, elasticity computing and storage (pay-as-you-go) (Kumar et al., 2022).

**Figure 3: Population**



### **Natural resource depletion**

The use of fossil fuels such as petroleum causes global warming and climate change. Numerous parties on a global scale are beginning to use renewable resources, such as solar power, biogas, and solar automobiles, which are applied by industrialized nations. Although the installation of these environmentally friendly technological facilities may seem to be rather costly in the short term, in the long run, it will be far less expensive than the usage of fossil and nonrenewable energy. This research conducted in one construction company in Indonesia, the company was facing several problems, many projects that already ended have delays (Andiyan et al., 2021).

**Figure 4: Natural Resource Depletion**



### **Waste disposal**

The next environmental issue is waste management. This includes plastic and urban garbage found in the Ciliwung River in Jakarta and Indonesian cities. In addition to domestic garbage, industrial waste that is often thrown into rivers kills fish and destabilizes river ecosystems. In reality, these rivers play a significant role in the community's economy and food supply. This waste's disposal will ultimately lead to marine contamination in Indonesia and destroy marine ecosystems, which are a source of fisheries. Nuclear waste disposal is of equal importance. The disposal of nuclear waste involves significant health risks, especially from radiation. Plastic, fast food, packaging, and inexpensive electronic trash endanger human health. Waste disposal is one of the environmental issues requiring immediate attention. The objective of this study was to determine the determinants between Community-Based Total Sanitation and the incidence of diarrhea in toddler at communities near rivers (Indah et al., 2022).



**Figure 5: Waste Disposal****Extinction of biodiversity**

The extinction of species and ecosystems and the loss of biodiversity are caused by human actions. The extinction of river turtles is caused by the unsustainable hunting of turtle eggs and Indonesian turtles to satisfy human protein demands. The extinction of the species would result in the elimination of a source of food for humans. Ecosystems, which need millions of years to establish and sustain human existence, are presently threatened by the extinction or disappearance of species populations. The ecosystem's equilibrium is upset. The degradation of coral reefs, which sustain abundant marine life, has diminished the supply of fish in the seas. Nonetheless, the human population is growing. SCOR (Supply Chain Operations Reference) model is a tool for diagnosing Supply Chain Management (SCM) that allows users to understand all processes in a business organization (Rosyidah et al., 2022).

**Figure 6: Extinction of biodiversity****Deforestation or deforestation**

Deforestation is an environmental concern of equal importance. Clearing of forests for the expansion of the plantation industry, particularly palm oil plantations, promotes the release of carbon into the soil, hence accelerating temperature changes on the planet. Forests that serve a role in collecting poisonous carbon dioxide from pollution, turning it into oxygen, aiding in the production of rain, and providing a home for a variety of species that are essential to human existence are being replaced by monoculture vegetation. Unlike woods, monoculture plants will not be able to contribute to the fulfillment of human requirements. The extension is an active procedure requiring contact between the extension worker and the individual to establish a behavior change process (Sulandjari et al., 2022).

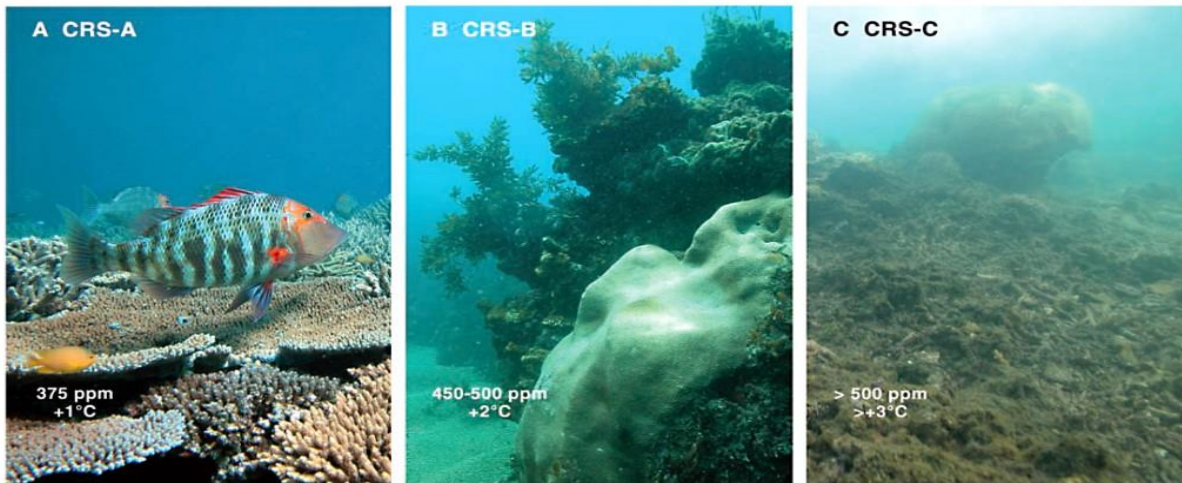
**Figure 7: Deforestation or deforestation**

### Ocean acidification phenomenon

This is a direct outcome of excessive Carbon Dioxide (CO<sub>2</sub>) gas production. 25 percent of the CO<sub>2</sub> gas is generated by humans. The acidity of the ocean has grown over the last 250 years. It may rise by around 150 percent by 2100. According to the website on global

change. The primary effect is the disappearance of shellfish and plankton, the fish's food supply. The necessities of life for each individual in the community will certainly not be the same, to be able to fulfill the purpose of these needs it is financed by the availability of funds or financial means (Sungkawaningrum et al., 2022).

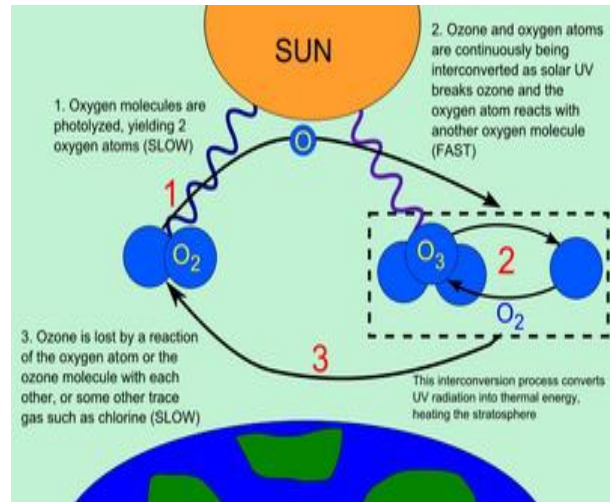
**Figure 8: Ocean acidification phenomenon**



### Ozone layer depletion

The ozone layer is an invisible protective barrier that surrounds the earth and shields humans from the sun's damaging rays. It is believed that pollution induced by the chlorine and bromide gases present in chlorofluorocarbons is responsible for the loss of the ozone layer (CFCs). Once the hazardous chemicals reach the upper atmosphere, they generate a big ozone hole over Antarctica. CFCs are currently prohibited in several industrial and consumer goods. Humans benefit from the ozone layer because it prevents harmful Ultraviolet (UV) radiation from reaching the ground. This should cause worry. Despite several challenges, the distribution of productive zakat continued throughout the COVID-19 epidemic (Arwani et al., 2022).

**Figure 9: Ozone layer depletion**



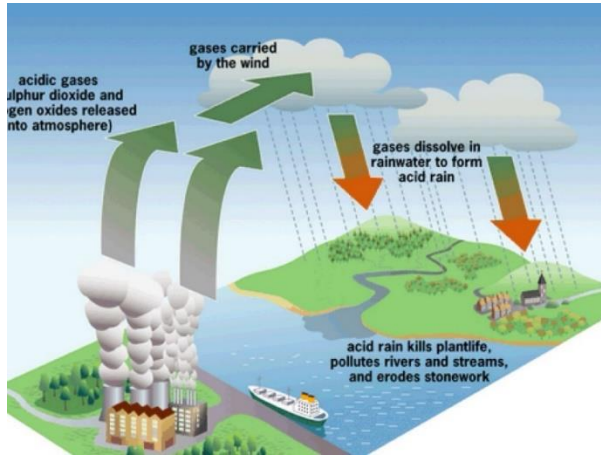
### Acid rain

Due to the presence of certain contaminants in the atmosphere, acid rain occurs. Acid rain may be created by the combustion of fossil fuels, volcanic eruptions, or decomposing vegetation



that emits sulfur dioxide and nitrogen oxides. Acid rain is an environmental issue that may have detrimental impacts on human, animal, and aquatic life. Climate change caused by many factors. One of the factors that influence climate change is building (Munawaroh et al., 2022).

**Figure 10: Acid rain**



### Genetical manipulation

Currently, several food goods, animals, and agricultural products are created using genetic engineering or genetic modification technologies. Biotechnology-based genetic alteration of food is referred to as genetic engineering. In general, genetic alteration of food items will raise human toxicity and illness risk. Genetically engineered plants and animals may pose major threats to human health and the ecological balance.

**Figure 11: Genetical manipulation**



A further disadvantage is that the growing use of poisons to make plants resistant to insect or pest infestation might result in organisms that are resistant to antibiotics. As the application of genetic engineering technologies expands, this problem has become more significant. To provide people with a healthy intake of food and nutrients, the best and least expensive solution is to return to technology or organic goods that do not include the use of chemical poisons.

### Conclusion

Conclusion Pollution or environmental pollution is the primary environmental issue. It takes billions of years for air, water, and soil to recover to their natural state after contamination. Changes in climate or global warming. Human activities, such as the generation of greenhouse gases, cause climate change such as global warming. Overpopulation. The population of the globe has reached unsustainable levels due to a lack of resources such as water, fuel, and food. Population growth in both rich and developing nations continues to exacerbate resource constraints.

### Reference

- Andiyan, A., Putra, R. M., Rembulan, G. D., & Tannady, H. 2021. Construction project evaluation using CPM-Crashing, CPM-PERT and CCPM for minimize project delays. In *Journal of Physics: Conference Series* (Vol. 1933, No. 1, p. 012096). IOP Publishing.
- Arwani, A., Salenussa, S., Rahayu, N. W. I., Faiz, M. F., Cakranegara, P. A., Aziz, A., & Andiyan, A. 2022. The development of economic potential of people in pandemic through earning Zakat distribution. *International Journal of Professional Business Review*, 7(2), e0414-e0414. doi: 10.26668/businessreview/2022.v7i2.414.

- Awosusi, A. A., Kutlay, K., Altuntaş, M., Khodjiev, B., Agyekum, E. B., Shouran, M., ... & Kamel, S. 2022. A roadmap toward achieving sustainable environment: evaluating the impact of technological innovation and globalization on load capacity factor. *International Journal of Environmental Research and Public Health*, 19(6), 3288. doi: 10.3390/ijerph19063288.
- Bhatt, P. 2022. Nanobioremediation: A Sustainable Approach for the Removal of Toxic Pollutants from the Environment. *Journal of Hazardous Materials* 427.
- Cahyanti, P. A., & Agus, C. 2017. Development of landscape architecture through geo-eco-tourism in tropical karst area to avoid extractive cement industry for dignified and sustainable environment and life. In *IOP Conference Series: Earth and Environmental Science* (Vol. 83, No. 1, p. 012028). IOP Publishing.
- Cardiah, T., Andiyan, A., & Rahma, A. 2021. Implementation of Health Protocols at Mosques during the Covid-19 Pandemic in the city of Bukittinggi. *Review of International Geographical Education Online*, 11(5).
- Cottafava, D. 2021. Assessment of the Environmental Break-Even Point for Deposit Return Systems through an LCA Analysis of Single-Use and Reusable Cups. *Sustainable Production and Consumption* 27:228–41. doi: 10.1016/j.spc.2020.11.002.
- Dai, X. 2022. Sustainable Financial Inclusion as a Source of Green Environment? Evidence from Selected Regional Comprehensive Economic Partnership Countries. *Economic Research-Ekonomska Istrazivanja*. doi: 10.1080/1331677X.2022.2035244.
- Harun, S. N. 2021. An LCA-Based Environmental Performance of Rice Production for Developing a Sustainable Agri-Food System in Malaysia. *Environmental Management* 67(1):146–61. doi: 10.1007/s00267-020-01365-7.
- Ibrahim, R. L. 2022. Trade Facilitation, Institutional Quality, and Sustainable Environment: Renewed Evidence from Sub-Saharan African Countries. *Journal of African Business* 23(2):281–303. doi: 10.1080/15228916.2020.1826886.
- Indah, F. P. S., Cardiah, T., Rahmat, A., Sulandjari, K., Andiyan, A., & Hendayani, N. 2022. Effect of Community-Based Total sanitation Program with diarrhea Incidents in toddler at communities near rivers. *Materials Today: Proceedings*, 63, S349-S353.
- Islam, M. S. 2022. Heading towards Sustainable Environment: Exploring the Dynamic Linkage among Selected Macroeconomic Variables and Ecological Footprint Using a Novel Dynamic ARDL Simulations Approach. *Environmental Science and Pollution Research* 29(15):22260–79. doi: 10.1007/s11356-021-17375-9.
- Kumar, G. S., Priyadarshini, R., Parmenas, N. H., Tannady, H., Rabbi, F., & Andiyan, A. 2022. Design of Optimal Service Scheduling based Task Allocation for Improving CRM in Cloud Computing. In *2022 Sixth International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud)(I-SMAC)* (pp. 438-445). IEEE.
- Moleong, Lexy J. 2007. *Qualitative Research Methodology*. Yogyakarta: Gadjah Mada University Press.
- Moslehi, S. 2019. An LCA Methodology to Assess Location-Specific Environmental Externalities of Integrated Energy



- Systems. *Sustainable Cities and Society* 46. doi: 10.1016/j.scs.2019.101425.
- Munawaroh, A. S., Jajuli, A., Persada, A. A. B., Rohayati, Y., Andiyan, A., & Cardiah, T. 2022. Application of passive cooling design concept as an effort to reduce climate change. In *AIP Conference Proceedings* (Vol. 2563, No. 1, p. 080012). AIP Publishing LLC.
- Oyebode, O. J. 2022. Design of Water Retaining Structures and Application of Environmental Engineering for Sustainable Environment. *Green Energy and Technology* 287–99.
- Pocol, C. B. 2022. Knowledge Co-Creation and Sustainable Education in the Labor Market-Driven University–Business Environment. *Frontiers in Environmental Science* 10. doi: 10.3389/fenvs.2022.781075.
- Rosyidah, M., Andiyan, A., Listyorini, H., Prayitno, P. H., Yuswardi, Y., & Yuhanah, Y. 2022. LCA methodology for detecting environmental impacts on natural gas drilling process. In *IOP Conference Series: Earth and Environmental Science* (Vol. 1041, No. 1, p. 012035). IOP Publishing.
- Rosyidah, M., Khoirunnisa, N., Rofiatin, U., Asnah, A., Andiyan, A., & Sari, D. 2022. Measurement of key performance indicator Green Supply Chain Management (GSCM) in palm industry with green SCOR model. *Materials Today: Proceedings*, 63, S326-S332.
- Sarkar, B. 2022. Challenges and Opportunities in Sustainable Management of Microplastics and Nanoplastics in the Environment. *Environmental Research* 207.
- Sarma, H. 2022. Emerging Contaminants in the Environment: Challenges and Sustainable Practices.
- Setiyowati, E., Agustina, A. N., Yuddha, A. S., Muchtar, M., Fatmawati, E., & Andiyan, A. 2022. Self-Management to Change of Perception and Clinical and Pharmacological Knowledge of COVID-19. *Journal of Pharmaceutical Negative Results*, 13(2), 1-6.
- Sugiyono. 2017. *Metodologi Penelitian Kuantitatif, Kualitatif Dan R&D*.
- Sulandjari, K., Putra, A., Sulaminingsih, S., Adi Cakranegara, P., Yusroni, N., & Andiyan, A. 2022. Agricultural extension in the context of the Covid-19 pandemic: Issues and challenges in the field. *Caspian Journal of Environmental Sciences*, 20(1), 137-143.
- Sungkawaningrum, F., Hartono, S., Holle, M. H., Gustiawan, W., Siskawati, E., Hasanah, N., & Andiyan, A. 2022. Determinants of community decisions to lend money to loaners. *International Journal of Professional Business Review: Int. J. Prof. Bus. Rev.*, 7(3), 6.
- Vekhnik, V. A. (2022). Postembryonic Development of The Edible Dormouse (*Glis Glis Linnaeus, 1766*). *Journal Of Advanced Zoology*, 43(1), 32–42. Retrieved from <http://jazindia.com/index.php/jaz/article/view/112>