**ISRAR WAHEED**

**Student ID: UD76841SMA86036**

**UNESCO’s Sustainable Development Goals - Industry, Innovation & Infrastructure**

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In Partial Fulfillment of the Requirements for the Degree of Doctorate in Maritime Management

**ATLANTIC INTERNATIONAL UNIVERSITY**

PIONEER PLAZA, 900 FORT STREET

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**INTRODUCTION**

Purpose of this assignment is to study the Sustainable Development Goals (SDG) of the United Nations Educational, Scientific and Cultural Organization (UNESCO), in particular, Goal Number 9 - Industry, Innovation and Infrastructure.

In 2015, UNESCO has established seventeen different SDGs and it has been targeted to achieve by year 2030. The UNESCO goals seek to secure a sustainable, peaceful, prosperous, and equitable life for everyone around the world.

It is a collective effort by not only the governments but also international organizations, multi-national agencies as well as private groups to achieve the targeted goals.

A primary path to achieve these goals is through education and knowledge sharing. This course will explore how policies in education can improve the world.

This course will focus on UNESCO’s 9th Sustainable Development Goal, which is “Industry, Innovation & Infrastructure” by 2030. How will education help to achieve this goal?



Source: <https://www.un.org/en/messengers-peace/unesco> (United Nations, 2022)

These courses on UNESCO’s Sustainable Development Goals are important to understand the most important issues of our lifetime and to see a plan for solving them in our communities.

Part of this assignment is to research on the below seven questions and provide explanations. Also, answers will be emphasized on the marine mode with respect to those three areas of the goal.

1. Why is UNESCO’s goal of Industry, Innovation, and Infrastructure important, in your opinion?

2. How is the state of Industry, Innovation, and Infrastructure in the world?

3. What changes need to happen to achieve Industry, Innovation, and Infrastructure?

4. Do you think it is possible to achieve Industry, Innovation, and Infrastructure around the world? Why or why not?

5. How can education lead to a world with Industry, Innovation, and Infrastructure?

6. What objectives, principles and teaching techniques are used in education to achieve Industry, Innovation, and Infrastructure around the world?

7. How can education improve in your community so that the next generation has the tools and mindset to obtain Industry, Innovation, and Infrastructure?

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**BACKGROUND**

UNESCO was established in November 1945 as part of a special agency of United Nations (UN) to building the peace among different nations and cultures.

Respecting each of the cultural values and tackle the poverty around the world. As well as international cooperation in education for all peoples as part of the initial goals.

Today, UNESCO has over 195 members and associate members with a General Conference and the Executive Board. Its headquarters are located in Paris, whereas it has regional offices all around the world. (UNITED NATIONS, 2022).

Some of the objectives of UNESCO are following:

* Reducing the world poverty
* Quality education for all human being
* Sharing of knowledge and science for sustainable development
* Collectively working on the social and ethical challenges
* Respecting all different cultures and understanding their values.



Source:<https://www.international.gc.ca/world-monde/international_relations-relations_internationales/unesco/index.aspx?lang=eng>

**SUSTAINABLE DEVELOPMENT GOALS OF UNESCO**

UNESCO has developed the seventeen different goals, known as Sustainable Development Goals, those goals are the basics to achieve the better future for all peoples. Those addresses the global challenges including poverty issues, hunger, and shortage of food, change in climate, inequality, environmental issues, and world peace. (UNITED NATIONS, 2022).



Source: UNESCO Sustainable Development Goals <https://www.un.org/sustainabledevelopment/>

Goal # 9 is about further developments in industry, innovation, and infrastructure to build a sustainable environment for the industry. It is the backbone of any nation which create jobs and improve the people living conditions.

Economic growth and social development of any society depends upon the investments in industrialization and infrastructure setup for manufacturing and transportations of goods and services. (UNESCO, 2022).

SDG # 9 is focusing on three different areas:

1. Industry
2. Innovation and
3. Infrastructure

Industry is the manufacturing and production of goods and services. It is not only the well-organized production plants put it can be a very small-scale unit. There are five different level of industry, from primary level to quinary level. Primary industries are those where extract or produce the raw materials such as a mining, forestry, or agriculture activities.

Whereas fifth or quinary industries are those where the industrial and government decision-making process happen. High level industrialists, politicians and bureaucrats make the policies and industrials laws in that level. (CFI, 2022)

Research, innovation, and update of industrial technologies are other key targets under this goal. There are still very low percentage of investment in the research, specially in the developing countries.

**ASSIGNMENT QUESTIONS:**

**1.Why is UNESCO’s goal of Industry, Innovation, and Infrastructure important, in your opinion?**

It is crucial that world continue to invest and expand different industries which are the backbone for any country development and advancement.

Research in newer technologies, innovations, development of infrastructure and optimizing the industries output for growth in economy and development of the nation.

Since the first industry revolution in early eighteen centuries, industrialization has changed the people lives and world prosperity has been benefitting all.

Earlier three industrial revolutions are the examples where world has been evolved to this stage.

All different sectors have seen development and improvements in their respective areas. Transportation is key move the goods and services to the end user.

All different mode of transportation systems from rail, road, air, and marine have seen the improvement and massive network to connect and move the products. From early cargo steam ships, now through the science, innovation and technology has able to build technological advanced shipping operating on hybrid systems (Rodridue, 2022).



The Four Industrial Revolutions

Fourth industrial revolution has accelerated the progress through technological innovations. Over-all there is an economic and social progress to the world population through these goals. (RODRIGUE, 2022)

**2. How is the state of Industry, Innovation, and Infrastructure in the world?**

There is a wide difference in level of industries and infrastructures when it comes to different countries and regions.

Developed countries have established a sustainable infrastructure and industries in their regions, whereas many developing countries are still in early stages of industry setup and development phase. According to the UNESCO 2019 report, medium to high tech sector account for about 45% of the global values but it is only 15% share in the sub-Saharan African countries. (UN 2019 REPORT, 2019)

Many of the high-tech industries and infrastructure have been setup in the developed countries, which are based on newer innovation and science.

There are many developing countries who have lately becoming a manufacturing hub for various goods. These countries are benefitting by their low cost of labor and cheap material as compared to developed countries where the cost of manufacturing is much higher. Specifically, China and India who are the leading manufacturing countries at his moment.

According to the UN report, developing countries are huge potential for industrialization and innovation. Agriculture expansion and production can be greatly benefitted to those countries.

Many of the basic infrastructure such as roads to the communities, clean water, sanitation services and education are not able to the Least Developed Countries (LDC), especially in Africa. (EUROPEAN COMMISSION, 2022)

**3. What changes need to happen to achieve Industry, Innovation, and Infrastructure?**

All governments put more efforts to work collaboratively to achieve the targeted goals of UNESCO. Advanced and developed countries should allocate more resources and assistance for the LDCs.

LDCs need to increase the development and more investments in their manufacturing sector, scientific research, and innovation to meet the 2030 target.

Technology is ever evolving and in order to meet the future challenges, industries and infrastructure must be upgraded. Governments must assist different industries to promote innovating sustainable technologies.

Although there has been a lot of global investments in research and development since 2000, it should continue to achieve the SDG targets by 2030. (UNESCO, 2019)

Governments should also make transborder infrastructure and transportation easy and accessible, that will improve the transportation network and steady flow of goods and services to the market. (GLOBAL GOALS, 2022)

**4. Do you think it is possible to achieve Industry, Innovation, and Infrastructure around the world? Why or why not?**

It has been almost eight years now since UN conference on sustainable development introduced these goals.

Timeline was established to achieve the targets and regular review of the progress by UN body. (PLAN INTERNATIONAL, 2022)

Beside the main goals such as ending the poverty and hunger for all nations and promoting a sustain living for the world populations, industry and innovation is key to the success.

One of the most important areas of action is climate change. We have already start seeing the effects, either intense storms, fires due to intense heat or drought. All those are impacting on the SDG9 and since goals are inter-connected therefore newer technologies and innovating solutions can play an important part to this goal.

**5. How can education lead to a world with Industry, Innovation, and Infrastructure?**

Education is the most powerful resource and tool to achieve the targets, by spreading knowledge and awareness of all seventeen SDG of UNESCO, we can get the results by 2030.

Governments can further integrate curriculum about the importance of industry, innovation, and infrastructures for all primary, secondary, and higher level of educations.

Most of the world populations, especially in the LDCs are living in the villages and not much education system in place. Those areas to be targeted to educate them and introduce newer technologies so that it can be implemented over those leased developed areas of the world.

Governments should also take the advantages of electronic mean of education such as online webinars and workshops to convey the developments programs to different peoples.

Mobile broadband level can be further improved for better reliable coverage to educate in those developing countries. (UNITED NATIONS - SUSTAINABLE DEVELOPMENT, 2022)

Education innovation concept has gain momentum in recent years, where latest virtual technologies are implemented to achieve the goals. Knowledge sharing and delivery methods have crossed the boarders and it has been able to reach out to the least privilege peoples of the world. (WORLD ECONOMIC FORUM, 2022)

**6. What objectives, principles and teaching techniques are used in education to achieve Industry, Innovation, and Infrastructure around the world?**

It is a global mission for all governments, international organizations, businesses, industries as well as, public to achieve the targets by 2030 and everyone collective efforts are required to be successful.

In last few decades, many developing countries and emerging economies are at forefront to educate the peoples. Which has led to expansion of industries and infrastructures of those countries.

Objectives to be continue the expansion of education for all countries by new innovative way of learning.

More support and expansion of infrastructure for LDCs to spread and increase the level of education in those countries.

SDG 9 teaching objectives be to promote the decent work environment by development of industry and infrastructure, such as a reliable transportation system, energy management, information, and technologies so that peoples can improve the living standards and progress in their lives. (ADITI, 2021)

**7. How can education improve in your community so that the next generation has the tools and mindset to obtain Industry, Innovation, and Infrastructure?**

Education is an important tool to improve the overall society living and standards. Education also led to think, improve learning outcomes, and promote innovating ideas. (OECD, 2022)

Education to be evolving and concentrates on research and innovations, especially in the higher studies. Still, most of the Universities are operate on traditional way and it can be seen from the below graph that education is somewhere at the lower contributor even in the advanced countries. Educational institutions to be more active to produce next level of graduates.



Source: Innovating Education and Educating for Innovation: The power of digital technologies and skills © OECD 2016

**CONCLUSION**

UNESCO SDG # 9 is based on three interconnected pillars of industry, infrastructure, and innovation. All share the objective of achieving an environmentally sustainable development.

2030 is approaching fast, still lot of cooperation and investments have to be done to have a resilient infrastructure and sustainable industries for all nations, in particular LDC.

Many nations, in particular developing countries are still struggling for the basic and necessary things of life such as food, clothes, and shelter.

Newer techniques and innovations can help to achieve reliable and sustainable infrastructure. LDCs needs more support and to be assisted for affordable transportable system and sustainable industries in their areas.

Developed nations to do more investments and cooperation in infrastructural projects to developing nations.

Technologies are improving with the new innovations, which let to improve the efficiencies and productivity.

Education is the most important for new ideas, innovation and improving the industries output as well as development in infrastructure. Innovation is an essential tool to bring about qualitative changes in industrial developments.

On the industrial and business site, governments and private organizations also needs to be innovative in order to keep up with their competition by introducing new products or services, improving the efficiency of their production and market share.

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