

Impact of environmental regulations on industry

[Business](#), [Industries](#)



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Introduction

The development of the world around us has been increasing rapidly in many areas during the past years.

As a result of the development the human lifestyle has become easier and efficient. Unfortunately these benefits from development have come at a price, the price been environmental pollution. The developing process affects the environmental stability of the world in many different ways such as climate change, global warming and health hazards. With the intention of preventing or minimizing these negative effects, governments and other officials have brought forward many environmental regulations. These regulations have an influence on our daily lifestyle and on how industries operate.

The history of environmental regulations in Europe goes back to the 19th century when the industrial revolution took place. In 1972 European officials introduced environmental policies with three main objectives. The main objectives were to prevent and reduce environmental damage, to support

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environmental stability and to balance the use of natural resources. Since then the environmental policies has been changing and affecting many industries around the globe. Some main industries include the building industry, automotive industry, manufacturing industry and aviation industry.

Different industries handle environmental regulations using different approaches and the specific impact on the industry differs from one to another. Although the impact on the industries differ the general out comes by enforcing regulations will remain the same. It is vital to look in to the bigger picture of global environmental protection rather than just concentrating on minor drawbacks which can occurs during the protection process. [EU Environmental Policies, 2006] Environmental regulations also have a significant effect on the general public.

It is reasonable to state that environmental policies have changed almost every aspect of our lives. Presently more and more people consider been eco-friendly which can be seen from their decision making. There is a direct link between the public and the industries. If the industries introduce more eco-friendly products the public will appreciate them and will consume, the best example for this is the hybrid car. This scenario also works the other way around; if the public insist to have more efficient and eco-friendly products the industry will fulfil their needs.

By making this connection stronger it will be easy to restore environmental stability and maintain it with less aggravation. Industries have taken many steps to minimise pollution and to prevent future pollution. This project will look in to the environmental impact on the aviation (aerospace) industry and how it will affect the future of the industry and it will also investigate where

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the aviation industry stands presently when it comes to environmental regulations. Aviation pollution is highly experienced in and around airports.

This is the reason why I selected this specific project. My future plan is to study further on Airport Planning and Management; furthermore my ambition is to work for my country " Sri Lanka". Sri Lanka is a developing country which has less experience on the subject of environmental pollution which is another reason for me to select this project. Objectives In order to make the progression of the project easy, the project is carried out in three main stages. This will also help to be on track according to the project plan; these three stages are illustrated as following.

Stage 1 - This stage helps to get an idea on what the project is really about and gives an idea what to expect in the future. Stage one mainly involves general broad reading.

Objectives for stage one is as follows.

- Planning the project
- What is environmental pollution about
- The history of the regulations established to protect the environment
- Critical analysis of environmental regulations
- How environmental regulations effect the general public
- Environmental regulations and different industries
- Future of the regulations
- Introductions to aviation and environmental regulations
- Any other general reading

Stage 2 - The stage two helps to build up own opinions and gain more information on the actual subject. One other main objective in stage two is to think about possible applications for the project. The objectives for stage two is as follows. Altering the project plan if needed

- Regulations on the aviation industry
- How the industry act according to the regulations
- How different is the aviation industry when compared to other industries
- Building up an own opinion on the subject
- Possible applications for the project
- Report submission (the planning report)

Stage 3 - This is the final stage of the project where the possible application is developed based on own opinions of the subject. The reading done in this stage should be more specified on the subject. By doing research it is important to do an in-depth analysis of specific subject data. By stage three the application of the project should be specifying a particular subject, if the application is too general or talks about many issues it will be hard to reach to a conclusion for the project. The objectives for stage three are as follows. In-depth reading on specified subject area (aviation) Working on one specific application

- Coming to a conclusion based on the specified application
- Presentation on the project
- Report submission (final report) Deliverables General aim of the project was briefly explained earlier in the introduction.

If it is to be recapped again, the general aim is to evaluate the impact by environmental legislations on the aerospace industry. For this particular topic there can be many end applications since it is a broad subject area, therefore it is important to narrow the subject matters into a one specified section and continue with the application.

By the time the application is completed there will be some deliverables. To explain the deliverables a probable application is used. The application used here might not be exactly the same as the final application of the project since it is only an initial application. Application - Air Traffic (aviation) and environmental legislation

What will be looked into? (What will be found out during the project?)

- How airlines operate (in the EU and Global)
- Growth of the air transport *
- What is the impact
- What is the attitude from the airlines towards the regulations
- Environmental damage including the present past and future
- What will be the future for the aviation under the regulation
- Comparison aviation to other industries (environmental aspects)
- Some other points (manufacture of aircrafts/economy/other related pollutions)
- Finally criticizing the analysis with the own opinion Deliverables change according to a selected application.

One other possible application that can be use is to look in to the manufacturing of aircrafts, materials used and how waste is treated according to environmental legislations.

In order to gain all the mentioned deliverables the project should be at the end of stage three as stated in the objectives. Since this project is still at stage two the deliverables might change as the project progresses.

Literature Review

(Findings up to date) The initial literature review was done in three categories which are,

1. General (any industry other than aerospace) environmental issues and legislations.
2. Environmental legislations and issue on manufacturing industry and materials.
3. Aerospace related environmental legislations and issues.

This way of reading was used to make sure that a broad general knowledge is gained on environmental subjects before stepping in to the specified topic. General environmental issues and legislations History of the environmental policies, legislations and organisations [EU Environmental Policies, 2006] As mentioned earlier in the introduction the Environmental Protection Agency (EPA) first brought forward official policies in 1973. Up to now 5 major regulation changes were done by the EPA. Changes were done to address current environmental issues which existed during specific times.

EPA gatherings during the past years is as following, 1st EPA 1973 - Made rules to save water, air and soil. Since it was the first EPA many other new

rules were established. 2nd EPA (1977-1981) - Did not publish any new regulation. It was held to review the progress of the first EPA. 3rd EPA (1982-1986) - Discussion on the impact of environmental legislations and economy. Emission rules and how to effectively get rid of waste. 4th EPA (1987-1992) - Increasing the general quality of the regulations. Introducing taxing and emission permits.

Discussion on waste cycles. Analysing impacts on the economy caused by environmental regulations. Discussion on climate changes. Last EPA up to date (1997-2003) - Renewal of emission standards. Next EPA - climate change, natural resources, recycling etc. A critical analysis of EU environmental legislations [EU Environmental Policies, 2006] Environmental regulations change all the time. In some cases environmental regulations has an influence on economy. It has been 30 year from the beginning of the EPA but still they are unable to complete some projects.

Natural resource use has been increased and destruction of natural habitats has also increased. The laws are not effective and regulations are not accessible for the public. The public should be educated more about pollution. Construction industry and environmental impact [Natural BuildingTechnology, 2011] The construction industry induce 7% (from the total) carbon dioxide in the UK. Using of buildings induce 50% carbon dioxide. Getting rid of the waste is a major issue faced by the construction industry. Construction industry requires natural resources such as wood. This leads to environmental pollution. Most of the natural resources are taken from China, India and South East Asia, therefore the damage is not directly done to the county where buildings are constructed. Environmental

legislation impact on the automotive industry [The Open University, 2003] First emission standards were introduced in 1959 for carbon monoxide and hydrocarbon emission. Most of the world use emission testing for vehicles. The regulations are tight on the diesel engine use. Due to the regulations engine life p is getting less and new designs are introduced frequently. Regulations has changed customer point of view.

They are looking for more efficient engines with less noise for a reasonable price. Due to the hybrid and electric vehicles the future of the diesel engine is not promising. Environmental legislations and issues on the manufacturing industry and materials Environmental Materials [UK Centre for Materials Education, 2011] Stages of material usage include extraction, production, product design and disposal. The subject environmental materials look in to the material structure, chemical and physical properties. Other than that it also looks in to the economical point of view. Picture below shows the lifecycle of a material Diagram 01, Life Cycle Analysis [UK Centre for Materials Education, 2011] The impact of environmental regulations on the UK manufacturing sector [Nottingham University, 2011] In a country the economy and environmental pollution is not proportional if that country has proper regulations. Current regulations act as a helping hand towards the development. Some regulations are not helping innovation. More flexible regulations are good for the economy. UK manufactures always select the short term regulations. Many companies now use materials with produce less waste. . Aerospace related environmental legislations and issues. Growth of aviation [Professor John Whitelegg , 2000] Since 2006 the growth has been 30% and it will double by 2020. The growth from 1995 to 2015 is nearly

300%. Aviation has the highest growth rate of all modern transport methods. Global revenue passenger kilometres (RPK) increased by a factor of 4.6 (since 1970-1995). RPK growth for different regions are- North America 27.5%/Europe 12.5%/Asia to America to Europe 12.7%/rest of the world 36.5%. But by today Asia (China and India) has the highest RPK due to the rapid development. By 2015 310 million passengers will go through UK airports (in 1995 it was 126 million). Noise pollution by aviation [Professor John Whitelegg, 2000] The noise pollution is commonly experienced around the airports. Officials claim that the noise footprint of the UK airports has gone down, but complaints from the public against the new terminal 5 in Heathrow airport proved that claim was wrong. In Netherlands noise pollution by aircrafts is 12%. UK officials claim that the number of people exposed to noise pollution has rapidly gone down, but Germany had done an investigation on the same matter and came up with a different claim.

They stated that there is an increase in the number of people who are exposed. Noise pollution affects human health in many different ways. Pollution by aircraft emission [Professor John Whitelegg, 2000] Gases which pollute the environment - carbon monoxide/ nitrogen oxides/ ozone / particulate matter (PM)/ volatile organic compounds (VOC)/ sulphur dioxide. UK officials claim that aviation pollution is insignificant, but US data for Zurich and Stockholm airports show that aviation emission pollution is significant in well-defined geographical area. Table below shows the Heathrow airport annual emission data Diagram 02, Heathrow airport annual emission [Professor John Whitelegg, 2000] Prediction shows that by 2050

carbon dioxide will increase by 588% and nitrogen Oxide by 411%. Aircraft emission at upper troposphere and lower stratosphere can cause serious climate change problems. Policy measures and management in aviation [Professor John Whitelegg , 2000] There are fewer regulations for the aviation industry when compared to other industries. Aviation industry should also follow regulations as other industries do. Current environmental regulations on aviation are out dated. Aircraft fuel is not under any taxing. To control pollution it is important to manage the transport demand. If a new regulation is introduces it should be introduced step by step. All the above mentioned points are from initial literature review. These data are brief descriptions obtained from broad reading. More detailed data are available in the log book.

Gantt Chart

The time period from 29/09/11 to 25/11/11 represents the stage one and two from the objectives.

By the time this report is completed this section will be completed. Stage one and two has only got four slots allocated and it is only a quarter of the total slots available. This shows that the amount of work which has to be done in stage 3 is comparatively high. The time allocation for specified reading, preparation for the final report and project seminar report and poster submission is relatively high. These are very important tasks of the project therefore they are going to consume more time relative to other tasks. The third stage starts on the 26/11/11 and it ends on 26/04/12.

Note - A full sized Gantt chart is attached in the appendix.

Discussion

The initial literature review shows general connections and areas where environment regulations have failed to achieve the required results. The regulations have been there for almost 30 years now but still most of the issues are not completely solved. Greenhouse gas emission has considerably decreased during the past years, but the rate of decline is not that impressive. The natural resource use has also rapidly increased up to a point where the general public can feel the effects of it.

It is fair to say that the world is in desperate need of finding alternative sustainable energy methods to survive in the future. There is a hidden truth behind the use of natural resource by developed countries. Most of the developed countries have limited their natural resource use but in order to fulfil their needs, natural resources are imported from other developing countries. This may seem great on the developed countries side but what they do not realise is the fact that negative effects from harvesting natural resources (no matter where it comes from) is going to be global.

By going through the data I feel like the environmental regulations has gone easy on the aviation industry when compared to other industries. Best example for this is the fact that automotive emission percentages are declining while aircraft emissions are on the rise. As an excuse for this most officials (mainly in the UK) compares data from 30 years back and claims, there is a drop in emission levels, but what they are not doing is, comparing data with other industries. If the emission is compared with other industries it will be glaringly obvious that more work should be done on aircraft emission standards.

One main reason for the slackness towards the environmental regulation on aviation industry is that aircraft traffic only contributes a small percentage towards the total pollution of the planet. But this claim is not that accurate, it doesn't take in to account the manufacturing process of aircrafts, natural resources used in the process and vehicle emissions due to airport traffic. Emission is not the only environmental problem caused by aviation, noise pollution is another main issue caused by aviation. New research shows that exposition to high noise levels can cause serious damage to people.

People who are continually exposed to high noise levels are more likely to gain noise related health issues, due to this fact living near airports can be a prime reason for health hazards. Likewise there are many unsolved problems involving the environmental pollution and aircraft industry. More details regarding issues and practical solutions for the issues will be researched and criticised in the next stage of this project. Furthermore an appropriate application will also be used to narrow the subject in order to make it more specific.

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