**Environmental Sustainability**

**Name of Student**

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**Introduction**

The sector that we have chosen is construction. This will include the building and renovation of houses. The geographic scope is the area of NCR in India. This is because the issues studied in this study will be applicable to almost all the third world countries. In this regard the aspects discussed in this study may or may not be applicable to the developed world. In fact these principles would have been already applied there.

**Literature Review**

The literature review will be completed with the help of the internet. The scholarly articles will be studied. We used the terms sustainability in construction in India and green construction in India.

(Baruah, 2010) analyzed the factors affecting the women in the construction industry in India. The particular focus was the ladies and the opportunities and problems that they faced. The quantitative research was under taken at Ahmedabad. Various surveys were held to judge the roles that women play in the construction industry. The results showed that there is a need to make better laws both at the state and national levels to make sure that women play an appropriate part in the industry.

The paper has been taken from a journal that is considered a reliable source. The main point of this study is that it suggests to improve the conditions for the women in the industry. This work is not directly related to our work as or work will be more related to the sustainability issues.

(shah) analyzed the construction industry in India in the light of sustainability. The author argues that the industry does not see the sustainable portion of the industry as a short term or long term goal. The industry is more focused on the short term economic aspects like profits etc. The human part of the industry is considered just for the sake of paper work. The actual change will come when the focus will change from short term economic goals to the long term goals of sustainability. The term sustainability is defined as the ability to meet the needs of the people without compromising the ability to meet the needs of the future. This definition links the micro aspects to the macro aspects. The research also questions the social aspects of the growth in the west. India negated the model presented by Gandhi and implemented the more centralized model that is taken from Russia. This change has given rise to a long debate between the people who prefer their respective views.

This is a conference paper that is available on the internet. This is a reliable source because the conference papers are selected after thorough research. The main theme of the paper is the change in the model in India. The study is somewhat related to our area of research.

(Kashiwagi, 2013) studied the problems faced by the construction industry of India. The writer pointed out three problems faced by the construction industry namely labor, planning aspects and the mentality of the people. The methods used to analyze the problems include the construction industry structure diagram and the proof that the same model has been used successfully to solve similar problems. The construction diagram consists of some owner controlled and some vendor controlled elements. The buyer should be chosen on the basis of quality rather than price. Quality assurance should be the key target rather than quality control. In order to attain the best value the system should be altered in a number of ways. The expert should be the vendor rather than the customer. The buyer should not be concerned what is being purchased for construction in the beginning. The vendor who can deliver the best quality should write the final contract. The vendor should be able to measure the value correctly at various stages of the process. Technical aspects should not be discussed until the best value aspect has not been decided. This model has been successfully implemented by the countries like US, Canada and Malaysia. Other than Malaysia all the countries were able to implement the model successfully.

This is a conference paper that is available on the internet. This is a reliable source because the conference papers are selected after thorough research. This research points out that the best value model is successfully implemented in the modern economies.

(Ling, 2006) suggested that the firms from Singapore when work in India face the political and cultural risks due to the cultural differences between the countries and the political instability in the country.

The paper has been taken from a journal that is considered a reliable source. This study is important for our considerations because the scope of our study is global and we will have to consider such factors as described in this study.

(Arif, 2009) analyzed the state of green construction in India and pointed out what factors affect the implementation of the subject. The study found out that the construction industry in the country has affirmed the importance of green construction. The major drivers of the change are the government and international organizations. The customer is willing to pay extra for the implementation of the concept.

The study is taken from a reputed journal site. The application is very much related to our study as green construction is considered a part of environmental issues.

(Dixit, 2017) studied the relationship between lean construction and sustainability in the construction industry in India. The study was undertaken with the help of questionnaires that were sent to professionals working in various companies. The study identified some tools for lean construction and also shown some sustainability aspects.

The study is taken from a reputed journal site. This is related to our study as it identifies the relationship between lean construction and sustainability.

(Arif M. , 2012) studied the aspects of waste generated at the construction sites in the country. Two cases were presented and interviews were used to gather the data. The findings show that it is the client that will push the company to follow the existing laws regarding the construction waste.

The study is taken from a reputed journal site. This is related to our study as it identifies the need to manage the construction waste properly.

**Sustainability Issues**

The sustainability issues identified are as under

**Workforce**

 The Indian construction industry employs a huge work force. The sector employs a large percentage of total national workforce. The problem however arises in the fact that the work force does not have the skill set necessary to be able to consider the importance of the sustainability issues. The majority of the workforce is uneducated and from the lower levels of the society. Thus the contractors exploit them to increase their own profits.

**Planning elements**

The Indian projects lack proper planning. This implies that the various resources used to make certain projects will be wasted if the project is not up to the expectation of the clients. Further there is a question mark on the performance of such firms who lack planning. This also implies that the projects will be low in quality. A quality project requires that proper planning is done before starting it

**Selection of Vendors**

The vendors are solely selected on the basis of price which means a clear ignorance on the part of the company against the sustainability issues. The criteria for selection of vendors should include the sustainability aspects so that the selection of vendors will result in better work.

**Environmental Aspects**

The environment is affected by the construction industry in a number of ways. In a country like India the environmental aspects are even more important due to the huge population that the country has. This also includes the failure of proper waste management on the part of the companies. The waste is considered in terms of construction waste management. The aspect also includes the implementation of green production. This would mean that the construction will not have an adverse effect on the environment

**Existing sustainability principles**

The literature identifies three aspects of sustainability (Sev, 2009). These are economic growth, social progress and environmental aspects. The construction industry is only focusing on the economic aspect of the sustainability. The availability of unskilled and uneducated work force also hampers the performance of the industry. The first thing that the customers consider is the price rather than the quality of the output produced. The companies also lack in the fact that they focus on quality control rather than quality assurance. The difference between the two terms means that the quality of any given output will be tested once it is completely done. The construction waste management is also an aspect from the side of the environment that has to be addressed. In this regard the customer does not force the companies to implement the better options of managing the waste created by the companies.

**Proposed sustainability principles**

The companies should implement the various aspects of the total quality management to their operations. The proposed options are the first run studies, six sigma, Kanaban, last planner system and visualizing tool. The sustainability aspects include resource management particularly the human resource which has to be educated and skilled enough to implement the sustainability policies of the company. The motivation level of the employees should be raised by improving the working conditions. Waste reduction and management, this aspect relates to the wastage of resources and the wastes created in case of taking down some structures. Energy minimization includes the minimum use of various aspects of the energy and also use such materials that do not absorb too much heat. The concept of green construction is also applicable here. The companies should abort or control those activities that do not add any value to the system.

**Conclusion**

The above discussion has brought forward some of the issues that the construction industry in India is facing. These issues hamper the ability of the firms to perform to their highest ability. In the long run these issues also affect almost all the stakeholders and will not allow the companies to work properly. The need of the hour is that the companies should focus on the sustainability issues keeping them in the front of all other aspects. This is because all the other problems or issues will be resolved if this one aspect is properly addressed.

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