

Economics of nuclear energy essay

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Nuclear energy provides approximately 16% of the world's energy requirements, nuclear energy was discovered by Henry Becquerel a French physicist in 1896, however the first successful nuclear plant was in 1938, nuclear energy production can be by two methods namely nuclear fission which involves splitting the atoms nuclei and the nuclear fusion involves joining an atoms nuclei. The production of nuclear energy is based on the physics formula $E = mc^2$ where E is energy, M is the mass and C is the speed of light, however only uranium and plutonium are used to produce nuclear energy.

Economic Effects of Nuclear Implementation The initial cost of setting up a nuclear plant requires approximately a minimum of 2 billion dollars, this cost is double the amount that would be required to set up a gas or coal plant, to the developing countries this cost is too high for them to implement, however due to advantages associated with nuclear energy first world countries should implement more plants, also developing countries should incur this initial cost so as to realize the advantages of using nuclear energy.

Advantages of nuclear energy: Nuclear plants produce high levels of energy compared to those that use fuel and coal, the energy produced by a million barrels of fuel could be produced by only one tonne of uranium, therefore this means of power production could be more economical to resources whereby we will have to use just a few tonnes of uranium for energy rather than use billion barrels of fossil fuels. Fossil fuels have been criticized for their mass air pollution and global degradation such as global warming but well operated uranium plants however have zero effects on the environment. Therefore to get rid of environmental degradation caused by pollution by products of fossils then we would prefer nuclear plants for energy.

Disadvantages: The initial cost to set up a nuclear plant is very high and the value is double the amount needed for other types of energy plants, a 20 billion cost to set up a nuclear energy plant is too high for a developing country whose spending goes mostly for sustaining their economy and very little for high cost investments. The mining of uranium may create a security problem in that this mineral is a raw material for the making of atomic bombs, terrorist attacks may be more frequent due to availability of the raw material in developing countries, and therefore setting up these plants may lead to insecurity. Uranium is itself a health hazard and also its by products, it is a radio active mineral and therefore may turn to a be a health hazard to the population if it is not well handled, it would therefore be very risky for developing countries to set up this plants due to the fact that they are not capable of dealing with disaster and protective measures. Nuclear plants may fail leading to a disaster example a melt down where the plant is out of control and causes an explosion, example of these disasters include the tree mile island nuclear reactor disaster of 1979 in Pennsylvania and the Chernobyl nuclear power plant of Russia in 1986. These disasters occur due to the fact that the uranium used is highly reactive and will lead to an explosion and that's why it is used to make bombs. Discussion: Nuclear energy production is economical in that only a few resources are used in production of mass energy, despite the high cost of setting up the plants developed countries should tap this resources to attain high economic growth, this would aid in the preservation of the environment and also this would work as a substitute to fossil fuels whose global prices keep fluctuating upwards. Therefore the plants should be set up as a way of realizing economic advantage due to the low costs of production, also <https://assignbuster.com/economics-of-nuclear-energy-essay/>

mineral deposits in these countries may be abundant than the fossil fuels and therefore they should be tapped.

In developing countries the nuclear energy may be far too expensive to utilize, further the mineral deposits may be far more expensive to extract and this would mean high production costs, low income countries may not be in apposition to cope with disasters such as melt down and this would mean endangering lives of the entire population in these countries, also the technology used to extract the energy requires that the uranium plant is highly maintained and protected which may be very expensive for the developing countries that lack the expertise and resources. Therefore the developing countries should not attempt to tap these resources otherwise this would mean endangering lives due to radioactive exposure, security issues should also be a concern in that setting up mines would mean access of raw material to terrorist used in making bombs. However the developing countries could benefit from nuclear products if the mineral deposits that exist in these countries is abundant, nuclear energy plants may provide energy for a long period of time compared to other forms of energy, also due to the fact that developing countries have very few fossil fuel deposits then a discovery of uranium ore in these countries would lead to high economic development and a sustainable balance of payment. The Future of nuclear energy: In the past man used resources such as coal to produce energy which was used in iron mines, steam engines and power plants, man later discovered fossil fuels and for a long time he has relied on the fossil fuels, however these fossil fuels have become scarce and their cost has become too high, we expect to find a substitute for fossil fuels and the substitute is

here, nuclear energy, soon we will experience a change in the source of energy, in the near future man will rely on nuclear energy and discard the use of fossil fuels.

There has been late discoveries that Fusion reactors have less disadvantages than the fission reactors, however the two methods are used today in producing nuclear energy, however in the near future we expect to discover better methods of nuclear energy production, this will be the starting point of the nuclear age when people will learn to live with uranium and plutonium. First world country governments are opposed to the use of nuclear energy by developing countries, the reason for this is due to security issues, the government fear that terrorism may rise and become more vulnerable due to the availability of raw material used in making bombs, however some countries feel that this is a way that restrict them from attaining high levels of economic growth, the developing countries feel that the first world economies do not want to lose their export levels of fossil fuels because once the developing countries adopt the nuclear reactors they will demand less fossil fuels and will not import the fossil fuels. However some developing countries accept the fact that the nuclear plants are hazardous and opt not to adopt them due to environmental hazards associated with them and also security issues. Another underlying factor against the implementation of nuclear plants in developing countries is the availability of the raw material uranium; most developing countries have very few resources and lack the means, resources, research breakthrough and expertise to undertake such useful projects. Scientist perspective on nuclear energy: Scientist promise better and safer nuclear energy in the near future, however the present

plants when well and properly maintained and run are safe to the environment and to the entire population, in the future scientist promise a complete substitution of fossil fuels with nuclear energy, the reason for this is that in the past people were afraid that gasoline was flammable and could catch fire easily, today we are at the same position we are afraid that nuclear energy sources such as uranium may explode or cause health hazards, we expect all this to be resolved in the future and we will utilize these cheap and reliable resources that are abundant due to the fact that they have not yet been exploited. Conclusion: Despite the risks associated with the extraction and production of nuclear energy people must learn and know how to live with these hazards, nuclear energy will become our future energy source and any country that will not adopt this means will lag behind in economic development, scientist promise better methods of production of nuclear energy in the near future, however it is very risky in the present time to extract these energy. Reference: Library thinks (2007) nuclear energy, retrieved on 20th April, available at http://library.thinkquest.org/3471/nuclear_energy_body.html

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