

# China's three gorges dam essay

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China's Three Gorges Dam Abstract The Three Gorges Dam is probably the largest construction project in China today. But why build such a massive structure with such enormous risks and costs? This paper examines the benefits and detriments in constructing such an enormous structure. The paper begins with the project itself, what are the facts and figures surrounding this project including its dimensions, capacity and other important factors. Then, we talk about the various benefits that the dam offers like flood control, environmental benefits, ease of navigation, and power generation.

Then, there are criticisms against making the dam like its cultural costs, displacement of people, the impact on the environment, sedimentation and national security. The dam is one of the most important projects of China for the past 15 years. With huge risks, problems and obstacle facing the construction of the Three Gorges Dam, the benefits must surely exceed the downside of this project hence its creation. Introduction China is country of ancient wonders and modern breakthroughs. History often views China as one of the cradles of civilization and in the past, it is at the forefront of technology with inventions such as paper, gun powder and many other things. But in the 21st century, The People's Republic of China has emerged as a military, political and economic world power. China has many ancient wonders with the Great Wall of China being the most popular and magnificent.

The country has often been viewed as a haven for history. But over the years, with strong economic growths, China has a lot of money to spend on infrastructures and public works. It has constructed countless miles of

highways and roads, put up bridges and overpass, constructed many airports, commissioned the Shanghai Maglev Train and hosted the Beijing Olympics. But probably one of the most important events of the country is the construction and completion of the Three Gorges Dam. The Three Gorges Dam, according to Encyclopedia.com's Three Gorges Dam article is currently the largest hydroelectric river dam in the world. When it was completed in 2006, it reached a height of 607 feet and stretched for 1.

4 miles across the Yangtze River which is China's longest river. According to MSN Encarta, its hydroelectric capacity is estimated at 18.2 million kilowatts. This is produced by its 26 turbines. The dam is expected to reduce the dependence of China on coal and bring power to many parts of the country.

**Project History**The idea of building a dam along the Yangtze is not a new and radical idea. According to the Chinese Embassy, it was conceptualized by Dr. Sun Yat-sen more than 70 years ago in his book *The International Development of China*. The Country studied the possibility of building the dam. But lack of resources and political will prevented the dam from being built. But since the founding of the People Republic of China, the project was back on track.

After years of studies and investigation by experts, it was concluded that the benefits of the project are big and will ultimately result in a better China. The National People Congress approved the project in 1992 and construction began at December 14, 1994. (Alin, 46). In 2009, according to Mufson's *The Yangtze Dam: Feat or Folly?*; the dam was expected to be completed.

But additional projects like new underground power plant and several new turbines plus the immense complexity of the entire project pushed its completion date by 2011. ScaleThe dam itself is an enormous structure. Made of concrete and steel, it is one of the largest structures in the world. According to Wertz in his article Special Report: Three Gorges Dam, the length of the dam is 1.4 miles long. Its height is 607 feet. In the center, there is spillway section with 23 bottom outlets and 22 sluice gates. On the left and right of this are two large power stations.

The wall of the dam is 377 feet thick on the bottom and 131 feet thick on top. It used more than 35,600,000 cubic yards of concrete and 463,000 tons of steel. During excavation, 134 million cubic yards of earth and stone was removed from the site to build the dam.

The reservoir provided by the Three Gorges Dam is also huge. Based on the article by Wertz, the average width of the reservoir is .7 miles while its length is 370 miles. The reservoir can store 51.4 billion cubic yards of water. The water rises to 574 above the river level. And finally, 589 billion cubic yards of water and 530 million tons of silt will flow into the reservoir each year.

EconomicsWith a construction project of this size, the price tag is also very enormous. The cost, according to ChinaCulturalMall.com would reach 180 billion Chinese Yuan or about 22.5 billion US Dollars when completed. It is less than the initial budget of 203.

9 billion Yuan or US\$25.2 billion. To recover the cost of building the dam, the government expects to get 250 billion Yuan in electricity money for 10  
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years by generating 1000Twh of electricity. Also, according to ChinaCulturalMall. com, sources of funds from the project include the revenue from Gezhouba Dam, policy loans from the China Development Bank, domestic and foreign loans from commercial banks, corporate bonds and revenue from the operation of the dam itself. The government also initiated additional charges from the province getting electricity from the dam.

### Benefits of the Dam

#### A. Hydroelectricity Generation and Distribution

The Three Gorges Dam is the largest hydroelectric power plant in the world by generating capacity.

According to the Three Gorges Dam article at ChinaCulturalMall. com, it has 32 generators with each one generating 700MW of hydroelectric power with a total generation of 22, 500MW. According to CRIOOnline. com, the dam has generated more than 274. 4 TWh of power as of October 30, 2008. It more than  $\frac{1}{4}$  of 100TWh it needs to cover the cost of the dam. During July, 2008, the dam generated 10.

3 TWh. It is the first time that the dam has generated more the 10TWh in a month. According to China Three Gorges Project Corporation, the electricity being produced by the dam was being sold to the State Grid Corporation and the China Southern Power Grid with a rate of 250 Yuan per MWh. This is equivalent to US\$35. 7/MWh. This rate was effective until July 1, 2008. Now, the price is different depending on which province the power is being sold to.

Ranging from 230. 6 Yuan to 311. 1 Yuan per MWh. Nine provinces and two cities get some of their power requirements from the dam including Shanghai. Originally, the Three Gorges Dam was expected to provide about

10% of the power requirement of China. But China's demand for electricity has increased at a much higher rate than expected. As of completion, the dam is now expected only to provide about 3% of China's total electricity consumption. B.

**Flood Control and Drought Relief**The Yangtze River has a history of flooding. Millions of people live by the river banks of the Yangtze and many important cities are located next to it. These include Wuhan, Nanjing and Shanghai. Every year, thousands of people are killed by floods and millions are directly affected by it. The Three Gorges Dam was created to solve this massive problem they face. The dam's reservoir has a flood storage capacity of 18 million acres. Based on the facts from ChinaCulturalMall.

com, this reservoir will reduce the frequency of major flooding from once every 10 years to once every century. If ever there is "super flood", the dam is expected to minimize the effect of this. And because of its huge reservoir of water, it is expected to provide water for the citizens of China and provide irrigation to the farmlands in the rural areas. C. **Navigation**The dam is also expected to help in the navigation of the river. Since the Yangtze is a major thoroughfare of the country, it is by ships to travel to inside the country mainland. According to Wetz, the installation of the ship locks are intended to increase river shipping from 10 million tons annually to 100 million tons with transportation cost reduced by 30-37%. Crossing the river will also be safer since the Yangtze is notorious for its treacherous water.

D. **Environment**The construction of the dam has also helped to alleviate environmental problems in China. As a direct result from hydroelectric power

which is a clean source of energy, there is a reduction in the air pollution and greenhouse gas emission from the coal power plants that the country normally uses.

And because of the increased ease of navigation, more ships will be used for the transport of goods and materials up stream instead of land transport. Fewer trips will be made because ships have larger capacities than cars and trucks thus also reducing the greenhouse gas emissions. As like with the Beijing Olympics where China has to reduce its air pollution and look at its environmental impact, this project also gave them a view into their environmental policies.

This prompted the Chinese government to have a reforestation program along the Yangtze River ban upstream of the dam. And finally, many waste water treatment plant have been constructed in the major cities along the Yangtze like Chongqing to prevent the pollution of the river. Many land deposit sites were also opened to prevent trash being thrown into the river.

Criticism against the DamA. Relocation of ResidentsThe building of dam, according to Wertz, displaced about 1.3 million people from their homes on the riverbanks of the Yangtze. This was done in three phases during 1997, 2003 and in 2009. The people were moved from their homes to the city of Chongqing.

Although these people were forced to move, they were still compensated for their troubles. B. Environment ImpactAccording to ChinaCulturalMall.com, the creation of the dam can create more greenhouse gases.

The reason is because even though the dam is renewable, the plants that are rotting will produce 30% more greenhouse gases. Another point is that since a large area was flooded, many species of plants and animal were lost or displaced during the flooding of the reservoir. C. Cultural Impact China has one of the oldest civilizations in the world. Hence, the area of the dam is rich with archaeological sites.

There are plenty of historical artifacts being discovered there and ever since the approval of the construction of the dam, these artifacts are being moved to higher ground to preserve them. But of the large area being flooded, who knows how many more sites remain undiscovered and artifacts lost to the Three Gorges Dam that is irreplaceable. D. Sedimentation One problem that the dam faces is that it is resting on a seismic fault line. This means that an earthquake could hit the dam. Another problem is the silt that the river produces. An excess of silt and lack of silt both presents problem to the project.

According to ChinaCulturalMall, excessive silt or sedimentation can block the gates of the dam and can cause it failure resulting in the thousands of deaths. The Yangtze can add as much 530 million tons of silt per year to the dam and can cause clogging. However, since China has four other dam projects upstream of the Three Gorges, this sedimentation problem has less an impact as was originally predicted. However, another problem arises from this, scientists think that too little sedimentation can lead to more flooding in the downstream areas. And finally, the city of Shanghai rests on a massive plain of sediment.



Only the arriving silt from the Yangtze can maintain the strength of the bed which holds up Shanghai. E. National Security And finally, the dam poses a huge national security threat for China. Since the dam affects so much people and property, its deliberate destruction can result in massive catastrophe for the country. Conclusion The Three Gorges Dam is a major accomplishment of the Chinese people. It shows their status as world superpower in today's world rivaling the achievements of the United States. This project, along with other technological breakthroughs and projects plus the hosting of the Beijing Olympic shows what the Chinese people can do.

But China still has a long way to go before it can reach the status of the USA. Recent scandals like the melamine and other quality control issues have tarnished the reputation of the country. Steps must be taken to improve these infrastructures because they are also as important as the physical infrastructure of the country. The building of the Three Gorges Dam has some positive and negative aspects to it. However, the Chinese Government has decided that the positives outweighed the negatives of the project hence its creation. The dam will bring a lot of good things for a developing country like China, however, it can also pose unforeseen threats that may be harmful to it in the long run.

Only time will tell whether the project is successful or not. References "Three Gorges Dam." Encyclopedia. com.

10 November 2008. <http://www.encyclopedia.com/doc/1B1-380677.html> "Three Gorges Dam." Encarta. Msn. com.

10 November 2008. [http://encarta.msn.com/encyclopedia\\_701879671/Three\\_Gorges\\_Dam.html](http://encarta.msn.com/encyclopedia_701879671/Three_Gorges_Dam.html)

Allin, Samuel Robert Fishleigh. "An Examination of China's Three Gorges Dam Project Based on the Framework Presented in the Report of The World Commission on Dams" (PDF).

Virginia Polytechnic Institute and State University. Mufson, Steven "The Yangtze Dam: Feat or Folly?" The Washington Post. 9 November 1997. 10 November 2008. <http://www.washingtonpost.com/wp-srv/inatl/longterm/yangtze/yangtze.htm>.

Wertz, Richard. "Special Report: Three Gorges Dam." Ibiblio.org.

10 November 2008. <http://www.ibiblio.org/chinesehistory/contents/07spe/specrep01.html#Quick%20Facts>.

"Three Gorges Dam." Chineseculturalmall.com. 10 November 2008. <http://www.chinaculturemall.com/Crafts/article.aspx?id=2530>.

"Three Gorges Project Zuoyou An 26 power generating units into commercial operation of all."

CriOnline.com. 12 November 2008. <http://translate.google.com/translate?u=http%3A%2F%2Fgb.cri.cn%2F18824%2F2008%2F10%2F30%2F2945s2302630.htm&hl=en&ie=UTF-8&sl=auto&tl=en>.

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“ National Development and Reform Commission to adjust the Three Gorges electricity power station.” China Three Gorges Project Corporation. 12 November 2008.

<http://translate.google.com/translate?u=http%3A%2F%2Fwww.ctgpc.com.cn%2Fsx%2Fnews.php%3FmNewsId%3D29096&hl=en&ie=UTF-8&sl=auto&tl=en>