

# Three Gorges Dam: Fortune or Folly?

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**T**he Yangtze River in China, the third largest river in the world, has long awed painters, writers, and poets. For centuries it drew people to its banks for trade, transport, and spiritual purposes, as evidenced by archaeological studies.<sup>3</sup> Like the Nile and Indus rivers, the Yangtze's fertile banks gave rise to one of the earliest human civilizations. Perhaps the ancient people came to settle on the Yangtze's welcoming banks because the land was ideal for growing crops; or maybe they were stopped in their tracks, awestruck by the breathtaking site of the Yangtze cascading through a set of chasms known as the Three Gorges. According to Chinese legend, "The scenic channel was carved in stone by the goddess Yao Ji as a way of diverting the river around the petrified remains of a dozen dragons she had slain for harassing the peasants."<sup>1</sup> It makes one wonder whether these people would still choose to settle there if the majestic gorges were replaced by a sheer concrete wall and 360 miles of the free-flowing Yangtze were replaced by a still water reservoir.

While a debate over the gorge's charm versus the dam's charm could provide some insight into the controversy surrounding China's Three Gorges dam project, this paper will instead discuss a more central aspect of the controversy—China's energy needs and the dam's environmental consequences. Environmentalists stress that the dam project, which would make the Three Gorges dam the largest in the world, will have severe environmental consequences including disruption of the river ecology and the extinction of endangered species.<sup>1</sup> Chinese government officials, however, counter that the dam is necessary to propel China into the 21st century.<sup>1</sup> They say that without it, China will continue to have difficulty in providing energy to its immense population.<sup>1</sup> Additionally, they stress that energy obtained from the dam is more environmentally friendly than alternative sources, which in China's case would be the burning of coal.<sup>1</sup> Both sides have their supporters, although it seems that the government's opinion, assuming sufficient financial support, will stand regardless of the environmentalists' position.<sup>1</sup>

The government's reason for building dams seems valid and fair. The building of small dams along the Yangtze River seems justified because they will provide energy without causing too much irreparable harm to the river ecology.<sup>1</sup> The Three Gorges dam, however, due to its enormity, is projected to have severe ecological consequences. Although it will help China reduce the burning of coal, a terrible air pollutant with global ramifications, the benefits may be undercut by its estimated effects—the predicted extinction of endangered river animals, the loss of countless archaeological sites, and the displacement of millions of people.<sup>3</sup>

Sandra Burton, the former *Time* magazine bureau chief in Hong Kong and Beijing, agrees with the environmentalists' point of view. Her article, "Taming the river wild," which was published in 1994, explains why the Three Gorges dam will not provide enough energy to justify its negative environmental consequences. Despite being published over eight years ago, the article discusses issues that are very relevant, as the Three Gorges dam is still under construction. Just as in 1994, we can only guess what the eventual economic and environmental aftermath of this immense project will be.

"Taming the river wild," begins by outlining the negative environmental, societal, and historical consequences of the Three Gorges dam. Burton states that the dam "will not only displace people but also devastate wildlife and

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alter the landscape forever”.<sup>1</sup> In this way, the article’s introductory paragraphs clearly state the author’s point of view. In what follows, however, we find that Burton’s views are not as black and white as her article’s introduction suggests. While she doesn’t support the Three Gorges dam, she also recognizes the problems in China’s current energy system. Thus, she acknowledges the Chinese government’s point of view but, in the end, still believes that there is a better and more environmentally friendly energy alternative to both dams and China’s status quo coal-based power plants.

Burton explains that “Chinese leaders argue vehemently that Three Gorges is vital to their country’s future—and actually good for the environment as a whole”.<sup>1</sup> She says that the Chinese government’s rationale for building the Three Gorges dam is to prevent the periodic flooding of the Yangtze and to provide a clean, renewable source of energy.<sup>1</sup> Coal supplies 75 percent of China’s energy needs.<sup>1</sup> Its widespread use has heavily polluted the air and has made respiratory diseases a major problem in China.<sup>1</sup>

Burton goes on to argue that “how China meets its energy needs has an impact far beyond its boundaries.”<sup>1</sup> She explains that emissions from Chinese power plants cause acid rain in Japan and Korea.<sup>1</sup> Moreover, because China is the world’s second largest producer of greenhouse gases, it is a major contributor to global warming.<sup>1</sup> Burton explains that additionally, China’s 11 percent annual economic growth rate is driving energy requirements even higher.<sup>1</sup> She argues that if coal burning continues to supply the majority of China’s energy, the environmental consequences will be catastrophic.<sup>1</sup>

While she is against China’s reliance on coal for energy, Burton does not feel that building dams such as the Three Gorges is a good solution. Her argument is an economic one in which she quotes experts and displays several statistics. In her article, Burton states, “Experts say hydropower will account for no more than 20% of China’s electricity generation by 2010.”<sup>1</sup> Additionally, she states that China’s “potential dam sites are in the less populated southwestern part of the country, making it expensive to transmit electricity to the industrial north and east.”<sup>1</sup> Thus, Burton argues that dams are a poor solution to China’s energy problem because they provide a relatively low percentage of the country’s total energy requirement and due to the logistical expenses of transporting the energy to areas that need it most.

Following this, Burton proposes alternative methods for China to reduce its heavy dependence on the burning of coal. She toys with the idea of nuclear energy, and she mentions that Jiang Xinxiong, president of the China Nuclear Industry Corp., predicts that an additional 20 nuclear power plants will be online by 2020.<sup>1</sup> However, she quickly

dismisses the notion that nuclear energy will solve China’s problems, given the controversy surrounding it and China’s “failure to adopt international nuclear safety standards,” which has “discouraged foreign investors from helping China build commercial reactors.”<sup>1</sup>

After this analysis, Burton concludes that China in fact has no alternative to coal. According to experts, “The best China can hope for ... is to find cleaner, more efficient ways to burn the plentiful fossil fuel.”<sup>1</sup> Doing so will reduce the amount of pollutants and soot released when burning coal.<sup>1</sup>

Burton continues by discussing factory devices that wash coal fuel, decreasing the amount of soot produced.<sup>1</sup> Following this, she states that despite such technologies, “Even if coal is burned cleanly, it produces large amounts of carbon dioxide, the most common green-



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house gas."<sup>1</sup> She reasons that the burning of coal should be avoided if possible. At this point in the article, Burton is left in an interesting position. It seems that she is choosing among several suboptimal energy choices, all of which require billions of dollars to develop on a large scale. Thus, she concludes by stating that China needs \$300 billion to develop clean energy projects.<sup>1</sup> She suggests that if these projects are not as controversial as dams, it may be possible to raise the money with help from foreign investors.<sup>1</sup>

Burton's analysis has many points of agreement—it appears necessary for China to explore alternative energy sources that will help reduce her dependence on coal. However, unlike Burton's view, many believe that utilizing dams, despite their negative ecological consequences, is a necessary step in this process. An editorial published in *Asiaweek* in 1996 titled "Asia Needs Dams: And yes—there are ways to minimize ecological damage" supports this viewpoint to a great degree. Like "Taming the river wild," this article is quite old. Nonetheless, many of its arguments are still valid today since it discusses issues that are still pertinent, and supports a position that continues to be defended by dam-backers in Asia. It is interesting to note that a more recent issue of *Asiaweek*, published in 2000, contains an article that argues a viewpoint opposite the 1996 article.

The editorial "Asia Needs Dams..." argues that dams are necessary in developing Asian nations for energy

production. It essentially supports the Chinese government's point of view with regard to dams. The editorial begins by acknowledging the environmentalists' point of view by stating several negative aspects of dams. It states that among other things, "The structures ... displace legions of people and devastate wildlife."<sup>2</sup>

The editorial continues by explaining why Asia in particular is an ecologist's nightmare. It states that Asia's dam projects such as the Three Gorges dam and India's Narmada dams are so large that they require World Bank involvement.<sup>2</sup> It is interesting to note, however, that in the wake of intense controversy the World Bank recently withdrew its support for the Narmada dam. The editorial argues that the Western media enjoys portraying Asian dams as "evil monoliths built on the premise that modernization is more important than the people and wildlife they affect."<sup>2</sup> Thus, it says "many [dam projects] are stalled for years in the crossfire of environmental study and counterstudy."<sup>2</sup>

The article's author feels that this is tragic because "[dam] projects stand to improve immeasurably the lives of the surrounding populations by providing power to spur the local economy and to create jobs."<sup>2</sup> He states that the Arun dam in Nepal, for example, would have brought electricity to the 90 percent of Nepal's population who still rely on firewood for cooking.<sup>2</sup> The project, however, was shelved when Germany withdrew its support due to vigorous lobbying by its Green party.<sup>2</sup>

The remainder of the editorial is a powerful yet concise argument for why Asia needs dams, regardless of Western pressure suggesting otherwise. It states that "the World Bank predicts that the region [Asia] will spend \$600 billion over the coming decade to meet its energy requirements."<sup>2</sup> The editorial further argues that if Asia acquires this energy from fossil fuels, it will only worsen the region's already serious pollution problem.<sup>2</sup> Although the editorial mentions clean and less controversial alternatives such as wind and solar power, its author dismisses them as being difficult to fund and develop quickly.<sup>2</sup>

Thus by rationalizing that other energy options are either environmentally or economically less feasible than dams, the *Asiaweek* editorial concludes that dams are necessary for Asia. It states that "dams provide a cheap, renewable and non-polluting source of energy."<sup>2</sup> Furthermore, the author reasons that dam utilization in underdeveloped Asian nations such as Nepal can in fact improve the environmental situation. In Nepal, a country with a wellspring of rivers, energy from dams can help stop the deforestation that occurs when people who are currently deprived of electricity burn wood for their energy needs.<sup>2</sup> He goes on to argue that deforestation can in turn cause flooding and propagate detrimental siltin effects.<sup>2</sup> He feels that these environmental and energy concerns make dams a necessity for Asia.

Like "Taming the river wild," the *Asiaweek* editorial concludes by suggesting environmentally amicable solu-

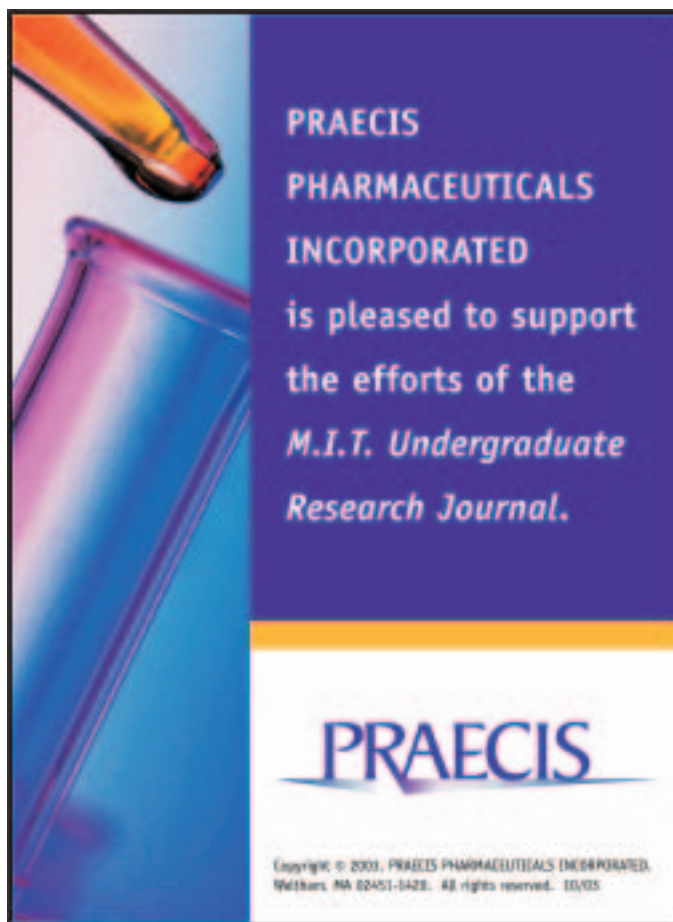
tions to improve Asia's energy systems. Its author reminds us that the World Bank already has stringent ecological impact and displacement of people guidelines that must be met before it lends money toward a dam project.<sup>2</sup> He also suggests possible technological techniques of making dams ecologically friendlier by mimicking seasonal river patterns as is being done in the Glen Canyon dam in Arizona.<sup>2</sup> In addition, he urges donors to exercise their rationale when funding a dam project. As an example, the author asks, "Does Malaysia need a dam with a reservoir the size of Singapore?"<sup>2</sup> He does, however, mention that if such a project is economically vital, it should be seriously considered.<sup>2</sup>

As a closing point, the article condones clandestine dam projects that are not disclosed to the public until the last minute. It quotes Mr. A. Kadir Jasin, a group editor of *Malaysia's New Strait Times*, as having said, "Public fear and scepticism cannot be avoided when things are done in secret and agencies involved are at loggerheads with one another."<sup>2</sup> The editorial's author believes that open discussion between a nation's government and people over dam projects, even if heated at times, will help build national support for such projects.<sup>2</sup>

The analysis performed in the *Asiaweek* editorial is very thorough. It provides a compelling economic and environmental reason for building dams, arguing that although not ecologically perfect, dams are cheap and environmentally safer than the common alternatives (fossil fuels). It is troubling, however, that a piece of evidence cited in the article is no longer valid. In contradiction to the article, the World Bank is no longer funding the construction of India's flagship Narmada dams. This notwithstanding, the article makes a logical argument about dams in Asia that holds even with this inconsistency.

The two articles, when taken together, present an interesting mixture of viewpoints on Asian dams, particularly the Three Gorges dam. "Taming the river wild" by Sandra Burton argues that dams are ecologically harmful and economically not viable enough to be worth pursuing. She suggests improving current fossil fuel—[one N]based systems in China to provide cleaner energy. "Asia Needs Dams: And yes—there are ways to minimize the ecological damage" argues an opposite viewpoint—that dams are economically viable and necessary for Asia's future, and that they are environmentally safer than the alternative fossil fuel based systems.

Like both authors, I believe that it is necessary for China to explore alternative energy sources that will help it reduce its dependence on coal. However, unlike Burton and like the *Asiaweek* author, I believe that utilizing dams are a necessary step in this process. According to Burton, the Three Gorges and associated dams will provide "no more than 20%" of China's energy source by 2010.<sup>1</sup> Burton also quotes experts who say, "The best that China can hope for ... is to cut coal's portion of the energy mix from 75% to 60% by 2010."<sup>1</sup> These statistics



show that hydroelectric power from dams will provide 15 to 20 percent of China's energy by 2010. This is a very substantial amount, given that it will largely be the result of damming only one river, the Yangtze. While dams such as the Three Gorges may not be a complete solution to China's energy problem, Burton's own evidence shows that their use in China can substantially decrease the country's dependence on coal. The *Asiaweek* article reinforces this notion by describing how other Asian dams such as the Nepal's Arun dam have promised to improve the country's dire energy situation.

Despite dams seeming necessary for China to improve its energy situation and decrease its reliance on coal, other energy options should also be looked into seriously. The Three Gorges dam, given its enormous proportions, may be too drastic a measure. It will flood surrounding cities, forcing millions to move elsewhere, bury historical artifacts, and drive to extinction endangered species such as the baiji dolphin.<sup>3</sup> For these reasons, work on the Three Gorges, in spite of its energy promises, should be discontinued. The smaller dams downriver on the Yangtze, however, because they promise to provide China with energy without such drastic consequences, can be utilized effectively. Although these dams may not be able to provide the bulk of China's energy needs, perhaps supplementing them with ecologically friendly

energy sources such as wind and solar power could help China realize its environmental and economic goals.

The *Asiaweek* editorial dismisses such clean renewable energy sources as being too high-priced and difficult to develop. But it may be that these may hold the key to China's and Asia's future. The European Union uses 70 percent of today's utilized wind energy, with Denmark harvesting 18 percent of its total energy from wind.<sup>4</sup> Given Asia's rapid rate of development, it seems very reasonable for China and the rest of Asia to follow suit. It is

unfortunate that both the *Asiaweek* editorial and "Taming the rivers wild" had to choose an energy system by process of elimination—the best of many environmentally bad choices. I look forward to seeing Asian governments in the future, after doing such an analysis, choose a clean, ecologically safe, renewable energy source such as wind or solar power to depend on. Although the continent would not have the world's largest dam, Asia would be a model for the rest of the world to follow. ■

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