The Geopolitics of Dam Construction and Operation along the Mekong River: Implications for Food Security in the Region

Nathaniel P. Candelaria[1], University of the Philippines, The Philippines

The Asia-Pacific Conference on Security and International Relations 2016
Official Conference Proceedings

Abstract
Rivers cater to the needs of the people, especially in terms of food, agriculture and energy. Rivers are important to human survival because they can provide food, irrigation, and energy source. However, these benefits to humans are threatened by dam constructions and operations along the rivers. While recognizing the importance of hydropower technology as an alternative source of energy, however, food security is challenged. In order to analyze how dam construction and operation can affect food security, a case study of the Mekong River will be done. The Mekong River is selected as the case to be studied because there are geopolitical implications as well as far as this region is concerned. One action from a state within the river can affect other states sharing boundaries along the river. In this paper, the author will attempt to discuss the development of dams in the river, its implications for food security in the region, and how geopolitics play a role in the issue. This paper argues that due to the geography of the Mekong River, the construction and operation of one state of its dams in the river will have serious repercussions on food security of other states along the Mekong River.

Keywords:Geopolitics, Food Security, Mekong River

iafor
The International Academic Forum
www.iafor.org

[1] Master of Arts in Political Science student, University of the Philippines, Diliman, Quezon City, The Philippines

Introduction

Rivers are a source of life. They cater to the needs of people, especially in terms of food and agriculture. In terms of food, rivers are important because they can provide people a staple source of protein through fish consumption, as argued by Orr et al (2012). In terms of agriculture, rivers can provide irrigation support to farmers. Irrigation is needed in order for farmlands to properly cultivate their food (Kirby et al., 2010). Given these uses, rivers are important in order to secure food that people need.

However, the promise of food security is challenged with the utilization of rivers as a possible source of energy through hydropower. Studies have concluded that due to the production of dams as a source of hydropower, it affected the production of fish within these rivers (Baran and Myschowoda, 2009; Kirby et al., 2010; Biba, 2012). Another study also concluded that the construction and operation of dams also affected farmlands due to the possible flooding that can occur in order to maintain dams for hydropower, which can negatively affect the nutrients in the soil due to sediments (Biba, 2012).

Given that there are issues as far as the construction and operation of dams are concerned, this paper will look into the case of the Mekong River. The Mekong River was identified as this paper's case study because the river crosses several states, from China up to Vietnam. There would be geopolitical implications in the region due to the role that geography played in the sense that there are many states sharing the bounty of the Mekong River.

In this paper, the author will attempt to discuss the development of dams in the river and its implications to food security in the region. This paper will also try to uncover the geopolitical issue of dam construction and operation in the Mekong River. This paper argues that due to the geography of the Mekong River, the construction and operation of one state of its dams in the river will have a serious repercussion to the food security of other states within the borders of the Mekong River.

This paper utilized qualitative content analysis of existing scholarly texts as the paper's methodology in order to find out knowledge on this particular topic. The limitations of this paper are as follows: 1.) it is a descriptive study of the topic at hand, and 2.) the study did not focus on the regional governance aspect of the Mekong River.

Mekong River: Geographical Description and Dam Construction

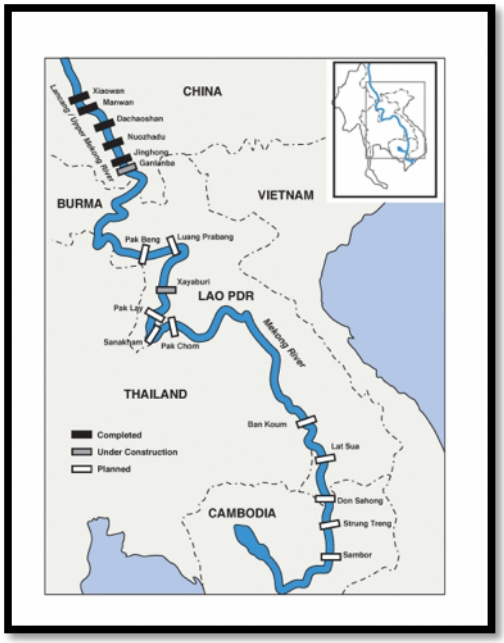
Mekong River is the largest river in Southeast Asia, and eighth largest river in the world (Haefner, 2013). He discusses further that the river flows into six countries, namely, Thailand, Myanmar, Laos, Cambodia, Vietnam, and China. He likewise stated that the Mekong River is an important strategic place which serves as the "center for food, accommodation, and employment" (Haefner, 2013, p. 28). Other scholars such as Kirby et al. (2010) also discussed that the Mekong River has a rich aquatic biodiversity, and is used by the six states for farming, fishing, and grazing, for people's livelihood. To illustrate the location of the states surrounding the Mekong River, a map of the region is provided below:

Figure 1. Map of the States surrounding the Mekong River

Source: http://mekong-delta.org/map/

While the Mekong River is recognized as a source of biodiversity and livelihood in the region, dam construction and operation in the region have already begun during the 1980s, when China built its first-ever hydropower dam in the river (Biba, 2012). Currently, China has five existing dam operations, and more dams are already under construction (International Rivers, 2013). A map of the planned and constructed dams along the Mekong River is provided below:

Figure 2. Planned and Constructed Dams along the Mekong River



Source: https://www.internationalrivers.org/resources/the-lower-mekong-dams-factsheet-text-7908

Aside from the existing dams in the upper part of the Mekong River there has been reports of dam construction in the lower part of the Mekong River such as the Xayaburi Dam. The Xayaburi Dam is currently being built in Laos, and developed by Thailand's CH Company (Goichot, 2015). The problem with the construction of the Xayaburi Dam was, while there is an agreement signed by Cambodia, Laos, Vietnam and Thailand in 1995, the Laotian government continued the project even though they have no permission from the other member-states of the Mekong River Commission to proceed with its dam construction project (International Rivers, 2013). Since the ongoing construction of the Xayaburi Dam, other dams have also been planned in Laos and Cambodia (Nijhuis, 2015). This will bring the total number of planned dam projects in the lower part of the Mekong River to eleven dams (Nijhuis, 2015).

Dam Construction and Operation as a Geopolitical Issue

Given the limitations set by the respective states' physical feature, one action done by one state within a feature shared by many other states made this particular concern in the Mekong River as a geopolitical issue. To illustrate this particular concern, this paper will briefly mention the case of Nile River. In their article, Ritterspach Thulin and Allegrini (2012) discussed how the actions committed by the upper riparian states in the Nile River, such as hydropower, negatively affect the lower riparian states, such as Egypt, especially with its agriculture industry. The authors in the article further discussed that this particular concern also threatened Egypt as upper riparian states also affect Egypt's water security.

The case of the Nile River is an example how its physical geography contributes to the geopolitical issues in that area. As regards the issue of the Mekong River dam construction, Cosslett and Cosslett (2014) discussed that the creation of dams in the Mekong River is usually one sided, especially China, where its creation of dams do not consider the vulnerability of other states. The authors perceived that the unilateral construction of China of its dams within the Mekong River is a threat to water security of lower riparian states, especially water quality and biodiversity. This has been the concern experienced by Vietnam, Laos and Thailand, where their low record of water supply can be attributed to the actions done by China (Cosslett and Cosslett, 2014). Aside from less water volume, the control of dams can also be used as a leverage for geopolitical relations against other countries sharing resources along the banks of the Mekong River (Biba, 2012).

Given that the trend observed was that states do not consider the implications of their decisions for other states, and that is the reason why that some argued for the importance of a multilateral approach is needed in order to resolve the problems in the Mekong River (Campbell, 2009). In the case of the Mekong River, Campbell (2009) pointed out that dam constructions and operations are in the upper part of the river, and fisheries are found at the lower part. In his book chapter, it was discussed that the effects of dam building are not only limited to national concerns, but also to other state sharing the same resource (Campbell, 2009).

Dam Construction and Operation and its Implications for Food Security

Given that the construction and operation of dams have implications for the geopolitics in the region, scholars have also pointed out that the geopolitics of the

states sharing the bounty of the Mekong River can affect the food security of the region. This paper, as stated earlier, will highlight how food security is affected by dam construction and operation activities in the Mekong River. One issue that this paper will look into is the impact of dam constructions on fisheries. Another issue is the impact of dam constructions on agriculture. And the last issue is the impact of dam construction on land use by different states. All of these concerns affect the promotion of food security within the region.

Impact on Fisheries

In their article, Baran and Myschowoda (2009) pointed out that due to dam constructions, fish production and cultivation is affected. They discussed that fish production is affected because the construction of dams physically blocks the pathways that fishes use. These pathways serve as routes for fishes in order for them to fulfill their life cycle (Baran and Myschowoda, 2009). Aside from passage blocking, dams also affect flooding and sediment formation which are factors that should be considered for fishes to reproduce (Baran and Myschowoda, 2009).

Some scholars support the assessment made by Baran and Myschowoda (2009). In one article cited by this paper, Biba (2012) discussed that there are implications regarding the construction and operation of hydropower dams in the region. First is that it can affect water supply at the downstream level of the river, and second is that the alteration of flow regime can negatively affect fish production, as seen in the case of Cambodia (Biba, 2012). Kirby et al. (2010) discussed in their article that the issue with the construction and operation of dams is that the dams can change of flow of water, which can affect the ecology of the Mekong River. The authors further discussed that aside from the Mekong River's ecology, dam construction and operation also affect the quality of water consumed by people in the area (Kirby et al., 2010).

Impact on Agriculture

In terms of agriculture, how the construction and operation of dams along the Mekong River affect the quality of water, and soil available for food production in the region? Due to dam construction and operation in the Mekong River, dams can affect the nutrients of land needed in order for it sustain the agricultural products farmed for food consumption (Biba, 2012). To specifically discuss how dam construction and operation affect agriculture, the articles of Biba (2012) and Baran and Myschowoda (2009) will be discussed in order to highlight the effects of dam building to agriculture.

In her article, Biba (2012) discussed that the formation of dams can affect natural flooding that provides nutrition for farmlands. Due to these dams, water sources that naturally reach the lands carry nutrients needed for agriculture, but this has been stopped since these dams block the natural pathway of water (Biba, 2012). Aside from the blockade of nutrients needed for agricultural production, Baran and Myschowoda (2009) highlighted that due to the operation of dams, it increases the formation of sediments. The formation of sediments negatively affects agriculture because sediments can make land resources suitable for farming less fertile (Baran and Myschowoda, 2009).

Impact on Land Use

In order to mitigate the effects of dams in the Mekong River, states have come up with their respective policies that will help them alleviate the negative effects caused by dam construction and operation, thereby affecting one state's land use.

In their article, Orr et al. (2012) discussed that due to the dam construction and operation, there is a trend that within Mekong River, states are losing varieties of fish which can serve as source of protein for the body. In order for people to utilize the nutrition that they need, they can get protein from other sources, but the cost varies, which in turn, affect their food security (Orr et al., 2012). One example where people can get their protein is through agricultural products. Orr et al. (2012) discussed that in order to replace the lost protein sources from fishes, forests are converted into farmlands in order to produce the deficit in nutrition. However, the catch is that while it is a viable alternative to fisheries, the production of alternative food sources is more expensive (Orr et al., 2012). Instead of directly getting their food supply in the river, states who utilized rivers for hydropower energy have to allocate land and water supply for the production of alternative food products needed for nutrition (Orr et al., 2012).

The book chapter of Campbell also highlighted an example on how land use served as an alternative for state to ensure food security. Campbell (2009) noted that there are alterations to the flows of water due to dam construction and operation, which in turn, have ecological and sociological impacts. He cited the cases of Vietnam and Cambodia, where the creation of flood control infrastructure exacerbated flooding in those states, and he also noted that due to dam construction, the infrastructure negatively affect water quality in those states (Campbell, 2009). In order to provide alternatives to people, Campbell (2009) stated that the states he mentioned are converting their forests into farmlands, in order to meet the demand for food. While it provides an alternative source of food for people's food security, the conversion process creates sediments which negatively affect the quality of water of the river (Campbell, 2009).

Conclusion

The issue of dam construction and operation along the Mekong River is a serious matter that needs attention from the states sharing the bounty from the river. As discussed by articles cited in this paper, the issue of dam construction and operation is a geopolitical issue because the development of these dams do not affect only the state creating them, but also other states sharing the bounty of the river amongst themselves.

As much as these states do not want to be adversely affected by the actions committed by other states, however, the geography of these states have already been determined. States along the Mekong River should reconsider the production of an alternative power supply through hydropower, since the price is great. The price of the construction and operation of dams that will provide the power will have implications for the food security of these states that share common resources in the river.

As discussed earlier in the paper, food security is affected by the construction and operation of the dams along the Mekong River. The construction and operation of these dams can affect the yield of fish and agriculture in their respective states.

States along the Mekong River should consider the repercussions that can occur to the fisheries industry once the dams are constructed and can now be utilized for hydropower purposes. The researches cited in this paper discussed the idea that there are negative impacts on fisheries and agriculture to the countries located along the Mekong River.

In order to counter the depleting effects of the construction and operations of dams along the Mekong River, several states have reconfigured their land use from forest lands to agricultural lands. This will help the states to be able to produce the proteins that the people need for consumption.

While there are attempts to improve the state of food security in the region, since the construction of dams along the Mekong River, however, scholars have noted that this is a counter-productive program because it can negatively affect the prices because the input is higher than by just cultivating fish along the river.

To wrap up the discussion of this paper, it argues that that the issue of food security among the states along the Mekong River Given are geopolitical in nature. One action of any state along the river can affect the state of food security among other states along the Mekong River. It is only imperative for all states sharing their water resources along the Mekong River to consider the actions that they conduct, in order for them not to affect negatively the conditions of other states sharing the same resource. States should consider the repercussions of their respective construction projects to the state of food security along the Mekong Region.

References

Baran, E. and Myschowoda, C. (2009). Dams and fisheries in the Mekong Basin. *Aquatic Ecosystem Health & Management* 12(3), 227-234.

Biba, S. (2012). China's Continuous Dam-building on the Mekong River. *Journal of Contemporary Asia,* 42(4), 603-628.

Campbell, I. (2009). The Challenges of Mekong River Management. In I. Campbell (ed.), *The Mekong: Biophysical Environment of an International River Basin* (pp. 403-419). New York: Academic Press.

Cosslett, T.L., and Cosslett P. D. (2014). *Water Resources and Food Security in the Vietnam Mekong Delta*. New York: Springer.

Goichot, Marc. "Multiple dams are ominous threat to life on the Mekong River." *The Guardian,* May 06, 2015. Accessed May 28, 2016. http://www.theguardian.com/sustainable-business/2015/may/06/dams-hydropower-mekong-river-thailand-laos-don-sahong-xayaburi.

Haefner, A. (2013). Regional environmental security: cooperation and challenges in the Mekong subregion. *Global Change, Peace and Security,* 25(1), pp. 27-41.

International Rivers. (2013, March 28). *The Lower Mekong Factsheet Text.* Retrieved from: https://www.internationalrivers.org/resources/the-lower-mekong-dams-factsheet-text-7908.

Kirby, M., Krittasudthacheewa, C., Mainuddin, M. Kemp-Benedict, E., Swartz, C., and de la Rosa, E. (2010). The Mekong: a diverse basin facing the tensions of development. *Water International,* 35(5), pp. 573-593.

Nijhuis, M. (2015 May) "Harnessing the Mekong or Killing It?" *National Geographic Channel,* Retrieved from: http://ngm.nationalgeographic.com/2015/05/mekong - dams/nijhuis-text.

Mekong Delta. *Mekong Delta Map.* Retrieved from: http://mekong-delta.org/map/

Orr, S., Pittock, J., Chapagain, A., and Dumaresq, D. (2012). Dams on the Mekong River: Lost fish protein and implications for land and water resources. *Global Environmental Change*, 22, pp. 925-932.

Ritterspach Thulin, K. and Allegrini, M. (2012). Excess, Access, and the Emerging Geopolitics of Food. *German Marshal Fund of the United States,* 1-15.