



Munich Personal RePEc Archive

# **Environment Case Study: Forestry and Water Management in Thailand: A Win Win Situation**

Mamoon, Dawood

University of Islamabad

21 December 2017

Online at <https://mpr.ub.uni-muenchen.de/83415/>

MPRA Paper No. 83415, posted 23 Dec 2017 05:59 UTC

# **Environment Case Study: Forestry and Water Management in Thailand: A Win Win Situation**

**By**

Dawood Mamoon

Dean and Professor

School of Economics and Management  
University of Islamabad

(Harvard Business School Affiliate: 2013-2017)  
(George Mason University Affiliate: 2016-2018)  
(Member World Economic Survey Expert Group)

Abstract:

The article offers a critique for the argument that forest clearing by the people in the upper areas of the watershed is the main reason for decrease in water supply. Instead he considers increased demand of water for agricultural activity especially during dry season by both upstream and downstream areas as the main cause of water shortage. Thus unlike previous studies, who blame people from upper lands for water shortage, he talks about the *fair share* of scarce resources and rights protection for upstream farmers.

Keywords: Natural Resource Management, Forest Preservation, Farmer Livelihoods

## **1. Case Review**

Evidence from different regions of Thailand suggests that forest loss has not necessarily reduced water supply. For example district of Chom Thoung, where the forest loss has been quite significant, has witnessed long-term increase in water supply. There is an analogy between water scarcity and the dry season periods of 1980s and early 1990s, when the environmental issues – water supply and forest loss- also emerged as part of the Thai forest policy discourse. This suggests that water supply or forest loss is both endogenous to drier season rather than the former variables being linked to each other. In support of the above argument, the author also challenged the general perception that upland forests serve as catchment sponges. Nevertheless Forests absorb more water than other water surfaces, this is not the sufficient condition for calling them catchment

“sponges”. In the contrary, in Thailand, rates of evapotranspiration are such that fully forested landscapes can return up to 80 percent of rainfall back to the atmosphere and since the forests are high water users, the clearing of forests can actually increase the stream flow.

Another vulnerability in the supply side debate of upstream watershed is part of the solution itself. For example one of the ideas, put forward by the studies is to conserve the forest to avoid shortages of water supply during dry season, which enforces initiatives to protect upper watershed areas against erosion by doing re-vegetation. However there are certain costs associated with such process. For example, re-vegetation bars the access of dwellers to the catchments areas, thus aggravating the problems faced by the upstream people whose livelihood depend on these lands. Thus the conservation policy can make them worse off by forcing them to displace. The evidence is that women are the one who are most affected by the whole process. This outcome of displacement is quite amicably explained by Salih (2001), where he calls such conservation practice as “authoritarian development paradigm” carried out by the “developmentalist state”.<sup>1</sup>

Thus there is a need for intensive evaluation on the demand side as a good initiative since it is precise that the global water demand has significantly increased by the end of the 20<sup>th</sup> century (Hoekstra, 1998). However some studies advocates mostly for the agricultural consumption, whereas I believe it should not be the only evaluated factor that concerns with the water demand. Water is not only for domestic or human livelihoods (Miao, 2003). Despite the fact that most of the global water demand comes from agricultural sector (Shiklomanore, 1997), it is also important to consider the remaining components of the water demand equation<sup>2</sup>.

---

<sup>1</sup> “Authoritarian development denies people the right to livelihood resources in the name of progress” (Mohamed Salih, 1993:43).

<sup>2</sup> Water demand can be divided into “offstream use for domestic, agricultural or industrial purpose and instream use for navigation, recreation or hydroelectric power generation” (Van der Leeden et al, 1990:4). As well as consumptive – changes characteristics through evaporation and transpiration – and non-consumptive – which recharges the groundwater and can be reused – (Hoekstra, 1998:21).

The environmental demand for water is an important aspect that is often left apart because of measurement difficulties which arise from the fact that its impact maybe different everywhere and also because ecosystem has the capacity of adapting to changes. The awareness of environmental conservation is imperative since “ecosystems require certain amounts of water to sustain their dependent species and their ecological process” (World Resource Institute, 2003). In short, the scarcity analysis indicators like price mechanisms, and water policies that are missing in the article, should be considered for the balance between human demands and ecological needs. For example the option to import products (*virtual water*) to decrease agriculture water demand is starting to be calculated (Hoekstra, 1998) and it gives a better option for arid zones (El Zain, 2004).

## References

Miao, H. et al, 2003. How to meet the environment water demand in a situation of water scarcity. A case study of the Haihe basin, China. CAS 2003.

Hoekstra, A.Y. 1998 Perspectives on Water: An Integrated model- based Exploration of the Future, International Books, The Netherlands.

Hoekstra A.Y. 2002, Virtual Water Trade: A quantification of virtual water flows between nations in relation to international crop trade, research report series No. 11, IDE Delf, The Netherlands.

Van der Leeden, F. et al, 1990, The Water Encyclopedia Second Ediction, Lewis Publishers, Chelsea, USA.

Falkenmark, M. et al, 1989, Macro-scale water scarcity requires micro-scale approaches: Aspects of vulnerability in semi arid development, Natural resources forum: 258-267

Falkenmark, M. “Water and Economic Development,” in Peter H. Gleick, ed., Water in crisis: A Guide to the World’s Fresh water Resources, New York. Oxford University Press, 1993.

Shiklomanov, I.A. 1997 Assesment of water resources and water availability in the world:scientific and technical report, State Hydrological Institute, St. Petersburg, Russia.

World resources institute, 2003, Environmetal water scarcity index by basin, [www.wri.org](http://www.wri.org)

Mohamed Salih, *African Democracies and African Politics*, London. Steling. Virginia, Pluto Press, 2001.

El Zaid, M. Environmental scarcity and the changing Hydropolitical formula in the Nile Basin : The case of Sudan. Paper presented at the ISS. 2004