**Annotated Bibliography**

**References**

The (Re)turn to Infrastructure for Water Management?

**Crow-Miller, Britt & Webber, Michael & Molle, Francois. (2017). *The (Re)turn to Infrastructure for Water Management?*  Water Alternatives. 10. 195-207.**

Annotations: In this article, the authors define infrastructure as the “mediate between societies and their environments”. Explaining how historically, infrastructure such as dams, levees, and canals, have taken a supply focused approach to meet water demand. But in the 1990s and 2000s, there was a global shift away from this ideology in favor of emphasizing an increase in the efficiency of water management. However, now we are seeing the return of big infrastructure across the globe, but with a combined supply and efficiency approach. The go on to explain that that meant that countries would just saying the lines that projected sustainability and made them look good, they needed to defend themselves, before doing what they wanted to do. This often results in these capital-intensive projects instead of addressing actual root problems of water mismanagement. Whether they framed it as a redemption project, or that There Is No Alternative, or used a narrative of scarcity, it is all just words. The authors then go on to talk about how these megaprojects are starting to get funding from private corporations and other countries, specifically citing China as one of the biggest contributors. This kind of private funding tends to lead to corruption. Which leads into the topic of social scale, and how the opinion of powerful elites can hold a lot of weight while local’s voices often go unheard. That as these projects get bigger and the scale gets larger, it’s easier for the governments to further centralize their power and ignore the wishes of their people.

This article relates to Sen’s definition of human development because it argues that this scaling up and over the wishes of the people is a step back in development. A decent standard of living is the dimension of human development addressed in this article. This article deals with the UN’s 12th sustainable goal: responsible consumption and production. The authors use multiple other papers outlining specific instances of infrastructure management in different countries to outline their findings. This article addresses the management of a resource, water.

An Assessment of the Effects of Africa's Water Crisis on Food Security and Management

**Besada, Hany & Werner, Karolina (2015) *An Assessment of the Effects of Africa's Water Crisis on Food Security and Management*, International Journal of Water Resources Development, 31:1, 120-133, DOI:**[**10.1080/07900627.2014.905124**](https://doi.org/10.1080/07900627.2014.905124)

Annotation: In this article, Besada and Werner discuss the role water plays in food scarcity and the affect the African water crisis has on the continent’s food security. First, they discuss some triggers of food and water scarcity. A large majority of their agriculture is rainfed, and therefore highly vulnerable to the elements. Unfortunately, Africa is very prone to devastating natural disasters. In the case emergency relief is necessary, not only is there an absence of a reliable method to transport or distribute it, but it could also cause a drop in food prices which hurts farmers who must sell their produce well below reasonable price. Food insecurity results in environmental refugees, which can devastate the resources of host countries, thus producing even more refugees. The authors cite an article stating that by 2025 the world population will increase by three billion, which will require 20% more water than we have access to at this point. Droughts are expected to get longer and more frequent, which will be felt by all those who rely on agriculture as well as everyone who befits from the trade and transport that goes with it. Another major problem inhibiting the water security in Africa is the lack of proper infrastructure. When something happens to the only source of water for miles, people, especially women and children in charge of bringing water back home, can get very hurt or sick. Another trigger mentioned was how with increasing urbanization, the already limited water supply and other land resources gets further allocated to cities and industrialization. The last trigger mentioned is how land grabs by foreign actors has increased the already fierce competition for resources. Besada and Werner go on to talk about the impact this has on development. Competition between shared resources cause very quickly escalate to conflict. Irrigation or dry-land need to be implemented more or the agriculture-based African countries will not be able to economically survive. The authors finish up the article with how to improve water management tactics. They state that keeping the treaties themselves flexible so they can adapt the situations around them is a major factor. Other necessities to manage water-related tension and conflict include local level community participation, negotiation, and access to formal water rights. The last tactic Besada and Werner share is trying to make use of traditional water preservation methods that have been passed down for generations.

This article relates to Sen’s definition of human development because the authors are very adamant about defending the water rights of every citizen, making sure to keep it at a local level and not steal those rights away from any individual. A long and happy life and a decent standard of living are the dimensions being addressed in this article. Goal 6 clean water and sanitation, goal 9 industry, innovation, and infrastructure, goal 12 responsible consumption and production, and goal 14 life below water all relate to this article. The authors of this article use census data and other article for reference. The authors use the geospatial preparation of the environment method in this article. Food scarcity and water management is what the author is investigating. The scientific question Besada and Werner are seeking to answer is how to optimize water usage while still insuring every person retains their right to water.

China and Africa: The New Water World

**Godfrey, Samuel & Ross, Anthony. "China and Africa: The New Water World." Waterlines, vol. 35, no. 1, 2016, pp. 12-17. JSTOR, www.jstor.org/stable/26600750.**

Annotation: In this article, Godfrey and Ross discuss the role China has taken in Africa. China’s investment in Africa’s water sector specifically is worth noting. However, China is not just an investing powerhouse but a construction one as well. The authors cite a study by the Japanese External Trade Organization Institute of Developing Economics, stating that in 2014 20 percent of all World Bank and African Development Bank international competitive bids (ICBs) were awarded to Chinese firms and that Chinese ODA or OOF rose to more than $12 billion. China’s expansion was motivated by three factors: 1) resources, oil & gas; 2) markets, over production at home Africa offers new consumers; 3) diversification. The authors then use a graph to illustrate how in 2006, China not only exceeded the World Bank’s investment but was seven times larger. The author then points out that this investment has been focused on urban areas within resource rich countries. That since they cost the companies much less, they only hired Chinese workers and then could get away with making them work in appalling conditions, all in the name of getting the job done quicker. Local construction companies could not compete with the low cost and quick time that the Chinese construction companies could offer. Lastly, Godfrey and Russ talk about the materials China used to build these projects. In order to keep cost low, they imported their own, often not up to code, materials.

Introduction to the Special Issue: Water Grabbing? Focus on the (Re)appropriation of Finite Water Resources

**Mehta, S. & Veldwisch, Gert Jan & Franco, Jennifer. (2012). *Introduction to the Special Issue: Water Grabbing? Focus on the (Re)appropriation of Finite Water Resources*. Water Alternatives. 5. 193-207**

Annotation: In this article, Mehta et al. introduces the issue of water grabbing, large scale water rights acquisition for agricultural and industrial production. And then define land grabbing as “the rush to acquire land as sources of alternative energy, crops, and environmental services”, and name it as a contributing factor to global food prices skyrocketing in 2008. Claiming they’re doing it to use the ‘unproductive’ or ‘wasted’ land, powerful global and national elite have stepped into the world of large-scale agriculture trying to take advantage of biofuels, flex crops and other major commodities, or to secure the water rights. However, they are taking over land that either was already being used by another farmer, is high quality land, or has a good claim on water. Mehta et al. questions then the availability of this water or if it will be unsustainably taken, either taking it away from someone else or ruining the land.

The authors then dive deeper into what land grabbing really is, first stating that “land grabbing is ultimately 'control grabbing’ or capturing the power to control land and other associated resources such as water, and how they are used, in order to corner the benefits”. Then they discuss how current land grabbing is largely in response to several simultaneous crises: food, climate change, energy, financial, and the increasing need of resources by rapidly developing countries and areas. Next Mehta et al. takes a better look into water grabbing. They state that powerful elites will use legal and technical means they have to subvert water and profit away from local communities and to themselves. They talk about how by nature water is fluid, literally, and therefore its availability fluctuates. These corporations are making it a commodity instead of a common good, effectively taking away the lively hood of many and altering the environment.

The authors then talk about the many processes driving the continuing global rush for water. Energy concerns are ramping up biofuel production and hydropower development. Private investments, both foreign and domestic, are being promoted and therefore being driven up by the host nation’s governments. Multilateral and regional banks encouraging privatization and deregulation of water and energy in the name of “efficiency”. There is two ways these land and water grabs are “justified”, the marginal land narrative and the unused/underutilized land narrative. Mehta et al. explains the complex process of water grabbing. In one way or another, almost all cases are made possible by the state in which the grabbing is taking place. Grabbers take advantage of how complex the legal ground is, with new commercial users coexisting with the nonregistered cause they always had the water rights. This pluralism can become quite convoluted and its often very hard for the local to defend their claim. These companies will then use informal social channels to get the government to rule their way. Corruption is really the biggest actor in those cases. The authors finish up the article by talking about the impact of the grabbings. The worst of them being when these corporations cause pollution upstream, entire communities can suffer, losing their access to water for irrigation and farming, and potentially their drinking water as well.

This article relates to Sen’s definition of human development because the authors are very adamant about defending the water rights of every citizen and about preventing large companies from destroying the environment for others. This article addresses the dimensions living long and healthy life and a decent standard of living. Goal 6 clean water and sanitation and goal 12 responsible consumption and production can both be seen in this article.

The authors use the geospatial preparation of the environment method in this article. The process the authors are investigating is the causes and effects of land and water grabbing. The questions the author is trying to answer in this article are what is water grabbing? How do the fluid properties of water interact with all the factors of the grabbing process? How will it impact current and future uses, rights, and benefits of water?