

## Water issues in social power imbalance

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### Abstract

Water has always been treated as the most significant resource of human. Throughout history, man have struggled for water, conflicted with neighboring country or states for transboundary river water share. They have also been facing problem about water governance. Cheap and abundant freshwater has been one of drivers of the world's industrial era. Human have tried to control water for different purposes i.e. establishing cities around it, transporting goods on it, and harnessing its energy for agriculture and history (Solomon 2011). However, with technological advancement, increasing population and rapid urbanization, the supply of water is declining. Whereas the demand of water is increasing rapidly. Enormous demand of water increases power imbalance and fosters crime in society. Although the social or economic aspects of water have been studied separately, these two elements have rarely been considered together. By combining these two features a better framework can be introduced to address the problem. This paper addressed the relationship of water with power imbalance in society and economy. The study found that corruption, neo-colonialism and inequality created in the society due to water across the world. At first it focused on the reason behind increasing demand of water in the world. Then it explored the relationship of water and power, social imbalance and human safety relating with four Hollywood movies- Chinatown, A Civil Action, Promised Land, and Erin Brockovich.

**Keywords:** water demand, social power, social imbalance, neo-colonialism, human health.

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### Increasing demand of water

Recent study showed that if the current pace of population growth and water management practices continues, by 2030, there will be a 40% shortage of water compared to global demand (Steven and Trier 2017). More than 97.2% of the world's water is salt water in the oceans and seas, leaving less than 3% as freshwater, much of which is contained in the polar ice caps, glaciers, deep aquifers or soil moisture (Dutta and Das 2015). Thus, only less than 1% of world's water is readily available for human consumption (Fetter 2014). Furthermore, the distribution of water throughout the world is not equitable for a variety of geographical and economic reasons.

Today, 70% of global water withdrawals are for agriculture of which approx. 54% directly abstracted from rivers or any form of surface water and remaining 41% from groundwater (Sutcliffe, 2021). Steven and Trier (2017) noted, additional 15% of groundwater need to be extracted for feeding nine billion world population in 2020 (Steven and Trier 2017). Groundwater is being depleted at a rate faster than it is being replenished. By 2025, about 1.8 billion people will be living in regions or countries with absolute water scarcity (Steven and Trier 2017). Growing water demand could ruin the equilibrium between economic resilience, human welfare and environmental protection (Sutcliffe et al. 2021; Zhao et al. 2021).

Moreover, water is an environmentally-friendly source of energy generation. Hydropower has incontrovertibly been the cleanest and most efficient source of renewable energy, which has a significant value for sustainable development. For that reason, people gave more interest and investment in environment-friendly and renewable energy, which will be free from direct or indirect detrimental effects on water retention, withdrawal, diversion, use and quality. It was suggested that by the end of 2050, around 4 billion people, which is around 40% of the world's population, will be living under harsh stress for water (Tayebiyani et al. 2019). All those causes reinforce the increasing demand of water throughout the world.

### **Water and social imbalances**

Water can create social imbalance in society. It has a very intricately linked with human health and survival (Smith and Gross 1999), that can accelerate social imbalances in society. However, water resources have not grown at the same pace as population growth and water demand in the region have increased exponentially. The global demand for freshwater is growing substantially without a synchronized growth in water resources. Today, one in six people of the world, a total of about one billion people, do not have access to safe water. The United Nations projects identified that by 2025, half of the countries worldwide will face water stress or outright shortages. By 2050, as many as three out of four people around the globe could be affected by water scarcity (ADB 2009).

Due to the huge disparity between demand and supply, water issues can exacerbate inequality of our society. The film Erin Brockovich is the best illustration of this question. The director very successfully presented the problem regarding social imbalances of the society, at the same time he revealed that how affection to mankind can solve the problem. In this film Erin has been given a real estate lawsuit document in which Pacific Gas and Electric Company (PG&E) offers to buy the home of Donna Jensen, a dweller of Hinkley, California. Investigating the matter, Erin noticed that the water in Hinkley was highly contaminated with carcinogenic hexavalent chromium. PG&E dumped their waste product in that area along with chromium-six which is a carcinogenic element. PG&E lied to the residents that they were using safer form of chromium; even though they were using hexavalent chromium which not only causes liver, heart and respiratory organ failure but also can deteriorate bone and other organs of human. It can also cause miscarriage, break DNA bonding and pass trouble to successor. In this type of situation, any profit-making company always hide the cruel truth from public.

Hiding the truth from Hinkley residents, PG&E are providing medical costs for sick people of that area. Many people of that area were suffering from tumors, Hodgkin's Lymphoma, different types of cancer, heart disease, deformity at birth etc. which were the direct effect of hexavalent chromium. Erin worked hard and explored that groundwater of Hinkley was severely contaminated with that toxic element. She found that main causes of those diseases were directly related to hexavalent chromium. She perceived that in that situation, large companies were active in hiding documents and evidences, intimidating public not to disclose anything against them. Thus, they were pledging power discrepancy in society.

Realizing the fact that PG&E could slow down, the settlement and appeals for long time, Erin took the opportunity to settle the matter through compulsory arbitration, but a large majority of plaintiffs must agree. Erin returned to Hinkley and persuades all 634 plaintiffs to go along. One of the employees of the company- testified to Erin an old memo from 1966 proving that corporate headquarters knew about hexavalent chromium contaminated water and that they tried to hide the truth from the community and secretly continued their dirty works. The judge ordered PG&E to pay a settlement amount of \$333 million among the plaintiffs, of which five million went to Jensen.

The film, Erin Brockovich, nicely mimicked how social imbalance created due to water issues and how those big companies like PG&E were making profit with help of the situation. It demonstrated that getting solution to overcome the problem was not very simple rather it took long time and went under several critical moments to get result. Those big companies tried their best not to lose their power at any cost. They did not bother about anything except their interest and power. Their function made powerless people more helpless and hence, water creates power imbalance in the society.

### **Water and power imbalances**

Water accelerates power imbalance and corruption in a society. Rich and powerful people use their control on water sector, power sector, property dealing, and land management to suppress the powerless ordinary people. They make more money and be more powerful by keeping ordinary people thirsty and creating artificial draught. They design and plan for future town according to their wish and profit. Even they don't be worry poisoning public water. Moreover, they manipulate drinking supplies and make water inaccessible and unaffordable to common people. They maintain network with influential people to make more benefit and continue suppressing ordinary people.

Availability and accessibility of water is important for analyzing freshwater and its relationship for human consumption. Availability refers to the physical existence of sufficient water supplies, while accessibility refers to the ability of people within a particular area to actually receive clean freshwater which depends on social or political factors (Smith and Gross 1999). Powerful people of a society use social and political factors according to their convenience. Sometime they artificially create draught for ordinary people and make water inaccessible for them. They do not even hesitate to poison public water. The movie, Chinatown was the best example of describing that situation of the society.

In the movie, Chinatown, Noah Cross exercised his supreme power everywhere from water sector, police department to land administration of California; he did not even exclude his household periphery. He displaced farmer from an area which he had chosen to expand his business. The film was inspired by a true story of California water scandal. Mulwray- an LA Department of Water and Power's Chief Engineer- publicly opposed to build a new dam because it would be unsafe for public. Later he had to sacrifice his life for his belief. Gittes began to investigate the murder on his own, and in doing so he realized that in every night, a lot of water was being released from the reservoir. Later he realized Noah Cross and his associates of Albacore Club compelled the distressed farmers of that area to sell their farmland in a reduced-price rate. He also realized that Noah Cross, and some of his associates at the Albacore Club, faked the drought. The miserable farmers then had no choice but to sell their land at a bargain price. Not only that, he did not hesitate to act cunningly or illegally in the greed for property. He also bought a lot of land in the Northwest Valley under the guise of dying man who died a week ago.

At the last part of the film, Cross confessed about his nefarious plan to connect the Northwest Valley with the city of Los Angeles, which allowed him to buy cheaper land, made more profit, and eventually owned the area's water supply. The city gave him the opportunity to increase his land, and Cross became even wealthier and more powerful. Gittes deduced that the water department was drying up the land so it can be bought at a reduced price and that Mulwray was murdered when he discovered the plan. The film nicely showed that politics and power of a city, state or country can be subjective for water. Water has that power to shift an urban area according to the interest of big businessman and could be a reason for killing innocent people or even create war. The film also showed that water could be a reason of war or even murder of innocent people. Thus, water could accelerate injustice in the society.

### **Water and neo-colonialism**

Water- all over the world- is at the main focus of economic and social development. It is vital for sustainable health and environment, grow food, produce hydropower and create job opportunity. At the same time, it is also a driving force for creating social power imbalance, corruption and neo-colonialism in this world. Its availability and management process impact on different parameters of the society. For this reason, big businessman wants to take management of water of any particular area. Water service remains a main task to align interests and incentives so that big business and government can work together for shared benefits in water. Yet these big companies are too often ignored the question how to deliver equity for the society. Actually, they don't concern about providing equity for society.

“These companies, engagement with public entities and civil society on water management problems is therefore a logical response to ensure that their own operations, reputations and license to operate are not jeopardized by problems of water quality and quantity, as well as being a contribution to the pursuit of water equity” (Roger and Nathaniel 2014). Through their authority and supply chains management power, these corporations can persuade how water and other natural resources are managed with the sake of their own interest. They do not care about the environment and the future generation. Most companies' influence beyond the factory gate is questionable. They neglect to advise the landowners of the potential environmental and health risks of the operations. The film, Promised Land is the best example of portraying this condition.

Large energy companies are showing their colonial attitude everywhere in the world. They used to buy farming land and personal property with a minimum price without considering about common people, next generation or environment. They always think about their profit and expansion of their business. Promised Land was a classic moral movie that beautifully portrayed greed against good, focusing on the current political climate debate about

the fracking industry. The film highlighting of the resource extraction process hydraulic fracturing (known as "fracking") emerged as a topic of debate. In this film Global Crosspower Solutions was an energy company that specialized in fracking - a process that explores natural gas trapped underground. The company wanted to buy lands for natural gas production in an economically struggling farming town of Pennsylvania where residents had been managing their family farm for generations. This type of company is very shrewd, far-sighting and discerning. They are very smart to select the right person and right location for any specific job.

Global Crosspower Solutions chose two appropriate personnel of the company- Steve Butler and Sue Thomason- to send that area for purchasing land in cheapest possible rate. Both of them had good record to deal lands for the company with convincing local people in the quickest possible time. They knew that people of that town were struggling financially so that it would not be hard to convince them within short time. They were almost convincing the local people to admit the Global's proposal if Frank Yates, an elderly, local high school science teacher, had not raised the issue of safety during a town meeting. Actually, there were several examples of spills and accidents during fracking operation.

The community agreed to vote in a few weeks whether or not to take the offer. Upon hearing that, an unnamed environmentalist lawyer - Dustin Noble - launched a grassroots campaign against Global, as in the past many cattle died and his family lost dairy farms in Nebraska. He went door to door of residents, community and at school and ultimately, successfully convinced them about the environmental hazard with fracking. Citizens of that town understand that fracking can contaminate their ground water and hazard their environment. Generally, oil-gas exploration company creates many underground micro-fractures to increase permeability of reservoir beds for extracting maximum amount of natural gas. They use huge amount of water and condensed brine, produce contaminated water and release it to nearby pit which threatens the environment. Sometimes their operation activated dormant fractures but they do not disclose all these undesirable matters to anyone. However, at the end of the film we could understand that Noble was also with Global and that his job was to discredit the environmental movement. He engineered the entire public relations effort, created a drama for fake environmental concern making people think about environment. He played with emotion of the residents and finally, produced fake documents on behalf of his claim. Actually, this is a neo-colonial approach where big companies manipulate any system to achieve their ultimate goal.

In fact, it was more about big business. The giant, money-making demon took advantage of poverty and ignorance of general people to make more profit, and if anyone interfered them, they used their money as a weapon to eliminate the obstacle. They did not care about the people and the environment. All they care about was only their profit. They always being exempted from related policy or regulation. For this they even did not bother to tell lie, cheat with people and engineer public relation. Promised Land was the fantastic instance of neo-colonial greed.

### **Water and human health**

Contaminated and unsafe water could be deadly, cleaning up the water sector is a matter of life and death. While we accept drinking water as human rights, we still perceive water resource management problems as issues of water availability (Roger and Nathaniel 2014). Industrialists or businessmen arbitrarily pollute river water, make it unsafe for drinking which is the root cause of livelihood insecurity. When truth reveals they do not admit it rather they try to suppress the situation exercising power and money. The movie, Civil action clearly expressed this issue in filmy way. The director showed that from 1966 to 1986, more than a dozen cases of childhood leukemia hit the small town of Woburn, Massachusetts. Later it was discovered that local wells G and H were contaminated with several suspected carcinogens, including trichloroethylene (TCE). The town had a long history of industrial activity, including a number of tanneries. Two major corporations, W.R. Grace Co. and Beatrice Foods, owned factories and plants in the area.

In a small town of Woburn, Massachusetts there were many instances of cancer which was much higher than normal condition in 1966 to 1986. Many children had developed leukemia and some of them died of it. A group of the parents, some of whose children survived leukemia, while others died, sought legal advice from lawyer, Schlichtmann, who knew that this kind of case was not easy to handle and win. He explored that the town had a long history of industrial activity beside the river. The industrial pollutants directly released to the river. There

were several tanneries, food and other industry in the area. Those industries dumped their chemicals directly to the river and sometimes into the ground. They compelled their workers not to disclose any information. The biggest thing was that they released trichloroethylene (TCE) which was a carcinogenic compound to groundwater.

Trichloroethylene has a direct relation to create leukemia to the residents of Woburn. However, those industry people denied the evidence and lied that they were not responsible for the circumstances. EPA started G and H's well testing to see if groundwater had reached the wells from the factory sites. However, EPA report did not publish before trial. Schlichtmann's firm was not financially solvent to carry on the case till end. They made settlement with the industry people and distribute the amount among the victims. Though at least the victims got compensation, however, human's life is priceless which cannot be compensated with money alone. From this we can understand that those companies are ready to compensate and admit brutal truth under judicial pressure. It is not easy for poor countries to see this light at the end of tunnel which developed countries observed after so much hardship. Studies have shown that water security and governance, especially in low- and middle-income countries, are highly gender biased where women are responsible for water collection but are at risk for water insecurity and most susceptible to waterborne diseases (Nunbogu and Elliott, 2021).

### Conclusion

Water is essential for human and all other life on the world. As there is a huge gap between its demand and supply there exist mismanagement of water. It is obvious that the struggle over freshwater will shape the world order in the future. Some shrewd and opportunist people in the society takes this advantage. Water creates power imbalance and accelerate injustice in the society. It accelerates neo-colonialism in society and manipulate public emotion according to their own interest. All four Hollywood movies mention in the paper reveals this fact nicely.

Governments, their development partners and service provider need to re-engage with water resources, but the conversation need to change. Need to focus more on people and their uses and needs for water, and less unrealistic planning frameworks. It is necessity to focus more on common people's water requirement, and less on unrealistic planning frameworks. This paper did not combine any direct political intervention and gender-based health effects into social imbalances due to water. A robust conceptual framework could be introduced by integrating gendered health ramifications, political meddling and all those issues discussed in this paper. It may be an interesting topic for future research. There is both need and opportunity to control neo-colonialism domination, and to begin connecting debates on resource management with existing bodies of knowledge and analysis on governance and politics learned over the last 50 years or more. In the interest of our next generation, no big company should be exempted from any act, regulation, or policy that could cause water resources problems. Finally, a long-term endeavor is needed to build more transparent, inclusive and accountable water service delivery institutions at the state, regional and local scales.

### References

- ADB (2009). Asian Development Bank and Asia-Pacific Water Forum, Achieving Water Security for All, in Asian Water Development Outlook 2009. Manila, Philippines.
- Dutta, S., and Das, A. K. (2015). Drinking water. *Handbook of mineral elements in Food*, 455-471.
- Fetter, C. W. (2014). *Applied Hydrogeology Pearson Education (4th ed)*, Pearson Press, Essex, UK.
- Ngai, W. C., Ranjan, R. and Brian C. C. (2016). Water governance in Bangladesh: an evaluation of institutional and political context. *MDPI Water Journal* 8(9)1-18, 2016, Basel, Switzerland. [Online] Available: <https://www.mdpi.com/2073-4441/8/9/403> (May 15, 2022)
- Nunbogu, A. M., & Elliott, S. J. (2021). Towards an integrated theoretical framework for understanding water insecurity and gender-based violence in Low-and middle-income countries (LMICs). *Health & Place*, 71, 102651. Available: <https://doi.org/10.1016/j.healthplace.2021.102651> (June 20, 2022).
- Polanski, R. R. T. (1974). Movie: Chinatown.
- Roger, C. and Nathaniel, M. (2014). The real water crisis: inequality in a fast-changing world. *Overseas Development Institute, ODI*, Blackfriars, London, UK. [Online] Available: <https://cdn.odi.org/media/documents/8953.pdf> (May 18, 2022).

- Sant, G. G. V. (2012). Movie: Promised Land.
- Smith, P. J. & Gross, C. H. (1999). Water and conflict in Asia? *Asia-Pacific center for security studies, APCSS seminar*, September 17, 1999 Honolulu, Hawaii, USA.
- Soderbergh, S. A. (2000). Movie: Erin Brochovich.
- Solomon, S. (2011). *Water: The epic struggle for wealth, power, and civilization*. Harper Perennial Publisher, NY, USA.
- Steven, N. S. and Trier, R. (2017). Water in agriculture: a water-secure world for all. The World Bank, IBRD-IDA.
- Sutcliffe, C., Knox, J., & Hess, T. (2021). Managing irrigation under pressure: how supply chain demands and environmental objectives drive imbalance in agricultural resilience to water shortages. *Agricultural Water Management*, 243, 106484. Available: <https://doi.org/10.1016/j.agwat.2020.106484> (June 20, 2022).
- Tayebiyani, A., Mohammad, T. A., Ansari, N. A and Malakootian, M. (2019). Comparison of optimal hedging policies for hydropower reservoir system operation. *MDPI Water Journal* 11(1) 1-19, 2019, Basel, Switzerland. <https://doi.org/10.3390/w11010121>
- Zaillian, S. E. B. (1998). Movie: A Civil Action.
- Zhao, D., Liu, J., Sun, L., Ye, B., Hubacek, K., Feng, K., & Varis, O. (2021). Quantifying economic-social-environmental trade-offs and synergies of water-supply constraints: An application to the capital region of China. *Water research*, 195, 116986. Available: <https://doi.org/10.1016/j.watres.2021.116986> (June 20, 2022).