WATER WARS AND THE GANGES pdf

1: Where the water wars of the future will be fought â€“ Sound Books

The sharing of the Ganges waters between India and Bangladesh over the appropriate allocation and development of the water resources of the Ganges River that flows from northern India into Bangladesh.

Beti Khan is a domineering presence in the evening crowd around the old village well in Gusiyari. And nobody wants their daughter to get married to someone from here because they think their daughters will die carrying water on their heads all their lives. The bricks along its rim are furrowed by the ropes used to raise the water from 50ft below in pots. Nearby wells with hand pumps produce water so salty it is used mostly for washing utensils. Farmers in this area are on the verge of starvation, forced to commit suicide. India is not alone in facing water shortages. But, with more than two months of rising summer heat still to come before the scheduled arrival of monsoon rains, the latest water problems demonstrate the gravity of its double water crisis: But in the longer term, mismanagement of water is likely to affect industry and the broader economy. Political issue Such concerns are not confined to non-government organisations. Shashi Shekhar, secretary at the Indian water ministry, says of the coming years: In the south, Tamil Nadu and Karnataka have long been locked in a bitter dispute over the waters of the Cauvery river. In the north, Punjabi landowners, abetted by the state government, have used bulldozers to fill in an unfinished canal that would take water from the Sutlej river south to Haryana. In the hard-hit state of Maharashtra in the west, the authorities are supplying fresh water to the parched Marathwada area by truck and even by train. In the driest places they have banned gatherings of more than five people around water supply points to prevent fights. On the other side of the country in West Bengal, a big coal-fired power station at Farakka that relies on cooling water from the Ganges had to suspend operations last month for lack of water in the canal that supplies it. As in neighbouring Pakistan, the problem is not an absolute shortage of water. In fact rainfall in India is high, albeit seasonal, and northern rivers are also filled with melted snow from the Himalayas. They only know how to construct. Landowners can pump as much as they want from the ground, too. A recent European Commission study on Indian water legislation noted that the number of boreholes or tube wells had risen from a few tens of thousands in the s to more than 20m today. In some parts of Punjab, that has led to a decline in the water table of up to three feet a year. India, the report said, pumps bn cu m of groundwater, more than any other country. Mr Ghosh adds climate change to the list of water woes. Not only is north India expected to become a few degrees warmer, which increases water use, but the rains are also expected to become less predictable. Alongside those measures officials would also need to reduce leakage from poorly maintained canal systems, stop the growing of thirsty crops such as sugar cane in dry places and manage water on the basis of entire river basins rather than state boundaries. Recycling of urban wastewater on a much bigger scale will also be needed. The alternative is to have India sink into a deeper water crisis with each successive drought, and to see entire blocks of land abandoned by their populations for lack of supply â€” something that already happens in the dry-season months when millions of rural Indians become temporary water refugees seeking work in the towns. Few water experts are confident of swift action. And what if this well too dries up? Additional reporting by Jyotsna Singh Munak canal, which supplies water to New Delhi, was damaged by protesters in Haryana state Urban demands create tension over supply It sometimes takes a rude shock to remind the residents of big Indian cities such as Delhi, Mumbai and Chennai how much they depend on water delivered from outside the metropolitan area for their survival. Taps ran dry after rioters in neighbouring Haryana state sabotaged a vital supply canal north of the capital by breaching its banks. One witness said it was easy: The rioters were not interested in the politics of water. Nineteen were killed by the security forces, but they got their way last month when the Haryana state legislature passed a law extending job reservations to Jats. The south-eastern coastal city of Chennai, struggling with the increasing salinity of its own groundwater because of over-extraction, competes with farmers inland by importing from sources west of the city. Mumbai, an agglomeration of land and landfill that was once seven separate islands, takes water from reservoirs in nearby Thane on the mainland. Delhi is the most egregious importer, relying for most of its supplies of water on the Himalayan foothills that is withdrawn from the upper reaches of the Ganges, Yamuna and Sutlej rivers and

sent south by canal.

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2: The Truth About Water Wars Â§ www.enganchecubano.com

The freshwater resources aren't well distributed to the drier regions. The Ganges River has long been disputed over by India and Bangladesh. The two regions share a common river system, formed by 54 rivers. The consequences: Disrupted fishing and navigation. Difficult conditions for the production.

Nations cooperate over a wide variety of issues Nations conflict over quantity and infrastructure A comprehensive chronology of water-related conflicts is maintained by the Pacific Institute in their Water Conflict Chronology, which includes an open-source data set, an interactive map, and full information on citations. In this dataset, water conflicts are categorized as follows: Control of Water Resources state and non-state actors: Military Tool state actors: Political Tool state and non-state actors: Military Target state actors: Development Disputes state and non-state actors: Yet water conflicts that go unresolved become more dangerous as water becomes more scarce and global population increases. But UNESCO faces optimistic prospects for the future as water conflicts become more public, and as increasing severity sobers obstinate interests. World Trade Organization[edit] The World Trade Organization can arbitrate water disputes presented by its member states when the disputes are commercial in nature. The WTO has certain groups, such as its Fisheries Center, that work to monitor and rule on relevant cases, although it is by no means the authority on conflict over water resources. Because water is so central to agricultural trade, water disputes may be subtly implicated in WTO cases in the form of virtual water , [27] [28] water used in the production of goods and services but not directly traded between countries. Countries with greater access to water supplies may fare better from an economic standpoint than those facing crisis, which creates the potential for conflict. Outraged by agriculture subsidies that displace domestic produce, countries facing water shortages bring their case to the WTO. The WTO plays more of a role in agriculturally based disputes that are relevant to conflict over specific sources of water. Still, it provides an important framework that shapes the way water will play into future economic disputes. One school of thought entertains the notion of war over water, the ultimate progression of an unresolved water disputeâ€”scarce water resources combined with the pressure of exponentially increasing population may outstrip the ability of the WTO to maintain civility in trade issues [29] See also: Interstate conflicts occur between two or more neighboring countries that share a transboundary water source, such as a river, sea, or groundwater basin. An example would be the conflicts between farmers and industry agricultural vs industrial use of water. Some analysts estimate that due to an increase in human consumption of water resources, water conflicts will become increasingly common in the near future. Nobody who has tried that has lived to tell the story. Water conflicts tend to arise as an outcome of other social issues. Data from the Water Conflict Chronology show these intrastate conflicts to be a larger and growing component of all water disputes, and that the traditional international mechanisms for addressing them, such as bilateral or multilateral treaties, are not as effective. The Blue Peace framework offers a unique policy structure which promotes sustainable management of water resources combined with cooperation for peace. By making the most of shared water resources through cooperation rather than mere allocation between countries, the chances for peace can be increased.

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3: The water wars of Delhi | The Third PoleThe Third Pole

A study finds that serious conflicts over water are going to arise around the globe. The 5 hotspots identified by the paper include areas of the Nile, Ganges-Brahmaputra, Indus, Tigris-Euphrates.

In an month study of Sudan by the UN Environment Program concluded that the conflict in Darfur had its roots in climate change and water shortages. According to the report, disappearing pasture and evaporating water holesâ€"rainfall is down 30 percent over 40 years in some parts of the Sahelâ€"had sparked dispute between herders and farmers and threatened to trigger a succession of new wars across Africa. Months later, the British nonprofit International Alert released a study identifying 46 countriesâ€"home to 2. Water scarcity threatens economic and social gains and is a potent fuel for wars and conflict. Barnaby cites the Nile Basin Initiative , a multilateral agreement among nine nations, including Egypt, Ethiopia, and Sudan, as a prime example of countries opting to cooperate rather than compete over access to water. It is not an equal partnership: Israel has de facto veto power on the committee. But they continue to meet and issue official expressions of cooperation even in the face of military action. Inequitable access to water resources is a result of the broader conflict and power dynamics: It does not itself cause war. Are they an imminent threat or, as Barnaby suggests, a fabrication unsupported by the facts and perpetuated by the media? Those who warn us of looming water wars usually base their arguments on an appeal to emotion, rather than on fact. But all is not quiet on the waterfront, and the need to establish objective and fair water-sharing principles is growing increasingly urgent. She may have added another reason for the lack of water wars: One could hardly imagine Addis Ababa or Dhaka sending fighter jets to Cairo or New Delhi, no matter the extent to which these river-basin hegemons control the Nile or Ganges and regardless of rising global food prices or sea levels. It matters little, however, if we are not likely to see bona fide water wars. After all, the absence of war does not mean the absence of conflict. Water conflicts are prevalent and causing suffering throughout the world. Southern Iraqi farmers are being forced into overcrowded urban centers, as multiple dams on the Tigris River within Iraq, Syria, and Turkey reduce the river flows to the ebb and tide of Gulf seawater. Palestinian farmers eke out a living based on highly variable rain-fed farming, right beside the industrial farms of Israeli settlers who receive their irrigation water at state-subsidized rates. Attempts to reconcile the mockery that such a fluid resource makes of our static political borders is well underway. The call to establish fair water-sharing principles is gaining momentum, with France committing to ratify the UN Watercourses Convention, and Spain and Tunis signalling their intent to do so. Though the US, the UK, and many other governments are resisting efforts by the WWF and others to push them to ratify the Convention, increasing demographic and anticipated climate change pressures dilute their excuses for non-ratification. Fair water-sharing principles will help establish the multilateral action required to replace the destruction wrought by an imbalance of power. Water conflicts not wars are a clear and present danger for millionsâ€"and deserve our full collective diplomatic, scientific, and financial attention. There is an emerging historical perspective that relates climate change and water shortages to war, and I have no reason to doubt this analysis. But just as our historical rainfall record is no longer a reliable guide to the future, perhaps our social and political responses to environmental challenges in the 21st century may differ from those of the past. I have reason for optimism in this regard. A number of institutions or institutional arrangements have emerged over the past years that attempt to deal with multinational issues around water resources. Notable examples for international river basins include: Convention for the Sustainable Management of Lake Tanganyika among four nations, A long history of negotiated agreements for the Nile dating back to at least now working toward establishing a nine-country commission Even the drought-ridden states of Australia have managed to cooperatively manage their most important and stressed river basin through the Murray-Darling Basin Authority. Are these arrangements imperfect? Their struggles to establish fair, equitable, secure, and healthy water-sharing arrangements are far from over. Their memberships are often incomplete. Increased prospects of drought and flood, and increasing demand for water, add to the pressures on what is often already limited technical or institutional capacity. Waterâ€"The Defining Crisis of the 21st Century. Often bone-headed, illiberal, venal,

and self-important people. In that sense, water no more causes wars than land or any other vital resource. The question is whether, like the others, water contributes to the reason people sometimes go to war. The answer is that it does. Ariel Sharon, in his memoirs, said the Six-Day War between Israel and its neighbors in was as much about water as anythingâ€”and it certainly led to Israel gaining control of the waters of the River Jordan, on which it depends heavily to this day. As Barnaby points out, countries have a lot of reasons for cooperating over water that flows between nations. But that approach will not always work. There are serious potential conflicts around the world where upstream countries can withhold water from arid downstream countries that need or want it. India and Pakistan constantly bicker over the Indus. How long will a fully functioning Iraqi state settle for Turkey controlling the flow of the Tigris and Euphrates with large dams? If wars arise over grievances, then water is a common source of grievances between nations. Israeli and Palestinian technocrats may cooperate over day-to-day water management, but that does not stop an absolute ban, imposed by Israel, on West Bank Palestinians sinking new wells to tap water beneath their feet. Water is a major grievance there. And as water shortages become more intense in much of the world over the coming decades, the potential for conflicts will grow. It can too easily become an excuse for failing to resolve conflicts. But to go to the other extreme and deny water as a potential factor in wars is equally foolish. Yes, management of water can become a meeting point for nations as well as a source of conflict. But many rivers and other sources of water that cross international boundaries are today not subject to treaties for sharing. If we are to avoid water wars, there is an urgent need for more water diplomacy. On our planet freshwater resources are unevenly distributed, in space and time. Especially in the drylands, where demand chronically outstrips renewable supply, management is a challenge. And it will certainly remain one in the future, given increasing population pressure and large future climate uncertainty, as well as ongoing freshwater resources depletion and degradation due to misallocation. The truth is that conflicts over water resources abound even nowadays. So the relevant questions become: Under which circumstances can those conflicts, if at all, spill over into armed violence? Could water wars eventually emerge as a defining feature of the geography of conflict? First, environments of absolute physical scarcity increase the propensity for conflictâ€”even more so if alternative means of overcoming the freshwater supply-demand gap are limited or even entirely absent. This is true for many underdeveloped, semi-arid to arid regions, such as the Sahel and parts of Central Asia. These regions are likely to experience increasing water stress given our current understanding of climate change. Second, man-made scarcity fosters competition and dispute. We see this in cases where a powerful elite controls the availability and access to freshwaterâ€”for example, in watersheds where upstream riparian states deprive downstream people of access to water in sufficient quantity and quality at the right time. If not adequately dealt with, increasing freshwater scarcity could induce large-scale population migration and trigger war, especially if displacement occurs across rigid territorial boundaries. Third and finally, water might become a leading cause of mass migration for another reason: Average global temperature is projected to rise significantly over the next decades, bringing with it a rise in sea levels and an uptick in coastal hazards. This poses a great threat for low-lying areas such as the densely populated Bangladesh and Myanmarâ€”where hundreds of millions of people live along the coasts. If land can no longer be tilled and subsistence farming is no longer an option due to lack of waterâ€”or if land is simply washed away by rising tidesâ€”populations will experience problems at unprecedented scale. What is needed are accurate early-warning systems and effective response- and risk-management mechanisms. Ideally they should be well rooted in sound national institutions and supported by the larger international community. At the same time, we should acknowledge that violent, armed conflicts are complex phenomena. Simple slogans and buzzwords based on reductionist reasoning are not paying justice to the complex societal and environmental challenges that our planet faces in the future. They will certainly not help the poorest of the poor, who have little coping strategies at their disposal to begin with. Campana is the director of the Institute for Water and Watersheds and a professor of geosciences at Oregon State University. He maintains the blog WaterWired. People are willing to do horrible things to each other. How many times has some expert portrayed a future with nations waging war over that most precious of resources, water? As someone who spent 17 years in the Land of Enchantment, I do not find that premise too much of a stretch. With international river basins and international aquifers, it would seem that water wars are

a virtual certainty. If anything, however, history tells us that cooperation over water exceeds conflict. During one of the wars, India continued to make payments to Pakistan as part of its treaty obligations. The US, Mexico, and Canada have effective institutions to resolve water disputes before they escalate. My colleague Aaron Wolf found that in the 50 years since the late s water cooperative events outnumbered conflictive events by 2. The aforementioned events afford some measure of optimism, but will the past predict the future? We face an uncertain and potentially calamitous future. World population is approaching 7 billion people. Climate change and its effect on water resources loom ominously. Watershed boundaries may change. Water supplies may increase in some areas and decrease in others. And since water does more than quench thirstâ€"it grows food, maintains ecosystems and fisheries, dilutes waste, provides recreation, facilitates navigation and trade, and generates powerâ€"I can foresee situations where nations, or even states, cities, or provinces, wage war over water and the services it provides. Can we take preventive measures? Rapid changes in international basins in the absence of institutional capacity e. River basins receive most of the attention, but so should transnational aquifers. Implementing these measures will be daunting. Aaron Wolf is correct:

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4: India: Water wars | Financial Times

In Bangladesh it is joined by the Ganges (known as the Padma in Bangladesh) and Meghna and together these rivers form the world's largest delta before emptying their waters into the Bay of Bengal.

Not for reproduction, distribution or commercial use. Abstract It is often said that future wars will be fought over water. In recent years, many water treaties have been negotiated and signed. However, these treaties face danger to their survival as allotted water in the existing sharing agreements in most of the cases is unable to meet the increasing demand. Possible impacts of global climate change have also brought further uncertainties to the peaceful sharing of scarce water resources. Growing Water Scarcity developing countries already face serious problems in meeting rapidly increasing water demands of their population. In many Water is critical for human survival, economic development, developing countries, urban centers are rapidly increasing. Certainly, few other resources affect so Moreover, some developing countries are also industrializing many areas of the economy or human and environmental faster. The expansion of urban areas and industrial sector has health. With greater water; however, most of it is saltwater, and much of the pressure being placed on the scarce water resources, over- remaining quantity is stored in ice caps, glaciers, underground, exploitation has resulted in acute shortages. Faced with such within soil, in the atmosphere, and in living beings. Almost all of the developing countries are in the arid, semiarid, and tropical Water Scarcity and Conflict regions; many of them are facing severe water shortages. This the deliberate targeting of water storage facilities may be high population growth in the developing countries has directly responsible for inducing water scarcity or reducing the multiplied pressure on fresh water resources Swain, Thus, water scarcity becomes This problem is further exacerbated in these regions by their part of a military strategy and military behavior. The requirement for hydroenergy and commer- control. Dam building, which has almost become obsolete in and technical support Swain, However, dam projects submerge vast areas of land River in the past, has resulted in peaceful and cooperative and forest and displace their inhabitants. There are millions of arrangements. The disagreement over control of the Columbia people who have lost their homes and livelihoods due to these River and Parana River in the relatively water abundant large water projects Swain, Americas has been settled for some time. The developing countries are primarily agricultural econo- Water is not easily replaced; so, the problem of its reduced mies. The quantity factor in achieve food security, these countries use proportionately more many cases threatens to destroy existing cooperative arrange- water on the agricultural sector than the industrial sector. Water tables are falling increasingly in every continent. In-depth studies of Rivers are one of the most important sources of fresh water for individual wars might reveal the real contribution water scar- human consumption. In scarcity situation, river water has city has on instigating wars in different parts of the world. Due to mutual dependence, society. Even though water disputes are omnipresent they tend cooperation in the basin. Yoffe and Aaron T. Wolf count the signing of water-related treaties in the last century. There have been Managing Shared Water Systems a number of very successful cases of cooperation among riparian countries that address pollution and management According to the Trans-boundary Freshwater Dispute Database issues of their shared waters. The agreements among the of Oregon State University, approximately half of the global riparian countries of the River Rhine, Colorado, and Parana are fresh water is available through international basins in the some of these examples. Overall, countries have territories Agreements on international rivers have not been limited to that include at least one shared river basin. Water has been addressing water quality or management issues. Many decades, several international river basins have also witnessed believe that the dependence of these poor countries on an a trend toward reaching agreements on quantity allocation as external water supply may force them to reorientate their well. Competing riparian countries of the Mekong, Jordan, national security concerns in order to protect or to preserve Ganges, Nile, and Zambezi Rivers have signed sharing such availability. Several countries are currently in dispute over the sharing of their common rivers. With the exception of the Jordan basin An agreement can be more likely among the contending Cooley, Agreement arms in these cases is not uncommon. One year before the Indus the Middle East Starr, The Agreement aid and assistance to undertake large water projects. Very few become a possibility since a large

amount of the run-off countries can undertake expensive water projects on their own, remained unallocated from the Agreement. However, coming at a heavy economic and political price e. In the post-Cold War period, it has become serious tension among the major riparian countries. The end of the Cold War continuation of the existing water sharing arrangements on the also stopped the alternative source of borrowing from the Euphratesâ€"Tigris river system. The hope for further exploitation Eastern Bloc. However, wars are very ments in recent years. Bangladesh signed the treaty with rarely fought over one issue. The states is not that easy. The Zambezi only and that they can address the issue with temporary real- river basin is another example of riparian cooperation based on location methods Tarlock, â€" However, climate the hope for the further exploitation. Signing of agreements on water sharing may be the water sharing framework to cope with emerging situation. As global climate change brings long-term changes to the The compliance part poses real challenges. The agreement volume and pattern of run-off in shared river systems, it needs to stand the test of time. Many agreements in recent years becomes crucial to examine the suitability of existing agree- have been reached about how the water should be shared. In ments to address this challenge. Climate-related changes might spite of reaching agreement, riparian discontent has not dissi- require comprehensive adjustments in the on-going water pated as many upstream countries believe they should have management structure of international rivers. Global climate change brings further uncertainties to the Basin countries must be under obligation to regularly smooth functioning, even survival, of these recent international exchange data and information among each other to monitor water agreements. With increasing temperatures and rapidly and manage changing conditions affecting shared water. In case melting glaciers, lesser water supplies will be available to farms of any dispute or disagreement over shared water management, and cities during summer months when irrigation demand is there must be provisions available to basin countries to high. Some parts of the globe may experience sizable reduc- manage them as soon as possible. Climate change will increase supply mandate to plan, operate, and implement, in order to cope side pressure for river water management, and global warming with changing climatic conditions. The emerging unprece- may also contribute to the demand side pressure due to dented situation due to changes in climatic patterns requires increased demands in domestic, irrigation, industrial, and basin countries to cooperate and act collectively Swain, There is no doubt that climate change poses extreme chal- As climate change can potentially affect water supply and lenges to water resource management in international river demand patterns, sharing of scarce water resources in the arid basins in the South. Maarten De Wit and Jacek Stankiewicz and semiarid regions will become the most likely security demonstrate the dramatic potential effects of rela- challenges in the near future. Climate science has been able to tively small changes in rainfall due to climate change over the provide a basic understanding of how the hydrological cycle perennial drainage of the river. Moreover, climate change will change at the global level, but the predictions of water might cause extreme weather events, water shortages, changing demand and supplies at the regional and basin level is still far sea levels, or melting glaciers that can generate serious threats from reaching any consensus. The projected impacts of global to critical river water management infrastructure. Even within an international river basin, the effects will not adequate enough to meet the scenarios that global climate vary depending on the location. This further enhances the change models project. Of river agreements development and growth in the basin. Variability of crucial water sector reforms, which is political by nature. But today, was able to obtain a majority support in the UN General hydro diplomacy needs not only to involve itself in an Assembly. The sharing of international rivers among the riparian countries in different geographical regions is a problem of huge magnitude. Complex water disputes can Water Resource Governance and Managing only be solved by cooperation and compromise, not by a strict Water Scarcity insistence on rules of law. For successful and lasting cooperation on shared waters, There have been numerous endeavors to establish and there is need for a comprehensive approach to address the strengthen international institutions and create an interna- water scarcity issue. This comprehensive approach includes tional legal framework for the management of international a number of measures to be taken at the basin level. Global initiatives on the matter of fresh water have focused measures include treating the river system as a single brought the international river sharing problem to the fore. Unfortunately, maximum utilization of their resources. The one economic, ecological, and political unit irrespective of state

failure of these two legal approaches led some to think of boundaries. The regulation and management of basin organi- sharing the rivers on an economic basis. According to this zations should be entrusted to an independent body, which is approach, the whole river basin is regarded as an economic unit outside the political control of any single riparian state. This joint approach includes joint planning, joint possible use of water, i. Not only states, but also nonstate water users must be The idea of a single basin approach is attractive to econo- eligible to participate as decision makers in the basin-based mists and water engineers because it allows them to consider organizations. The sustainable use of fresh water requires user the international rivers as single hydrological units and plan participation in all aspects of water policy and management in accordingly. In order to construct sustainable basin-based water sorting out the externalities among the various riparian management institutions, contextual considerations are of the nations. The regulation and management of international river utmost importance. Existing traditions of rain water harvesting, basins with so much concentration of power in the hands of water storing practices, and agricultural patterns are some of nonpolitical commissions is an exception rather than the rule the issues to be taken into particular consideration while in the interstate practice. Owing to obvious limitations of states formulating basin management policy. It is necessary to have actually agreeing to joint development, not many examples are a set of clear rules and regulatory measures in the basin found employing this approach. In several mented in individual cases and due to their various limitations cases, riparian countries have unequal access to data and were not feasible for international practice. In the absence of information due to differing data accessibility and asymmetric any law to regulate international river systems, the Interna- competence to process data. For the smooth running of a river has submitted its draft in for the consideration of the UN basin management regime, a functional information-sharing General Assembly. Finally, the Convention on the Law of the framework is required. Non-Navigational Uses of International Watercourses, adopted These basin-based initiatives need to be augmented and by the UN General Assembly on 21 May , was submitted supported by various nation-state and international measures. To meet growing demands there is a need to 50 years have witnessed many water treaties being negotiated minimize water use, particularly in the agricultural sector. However, these water treaties face danger to their Riparian states may opt for a planned allocation of agricultural survival if they fail to receive support from effective institu- activities to improve the productivity of water in their various tional arrangement for proper water. Allotted water in the regions in order to meet the future demand for food. There is existing sharing agreements in most of the cases is unable to a need to restrict and regularize the demand for the increasingly meet the increasing demand. The scope of further augmenta- scarce water resources in the basin.

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5: Water conflict - Wikipedia

If we are to avoid water wars, there is an urgent need for more water diplomacy. War 2 0: Three Reasons that Violence Could Erupt Tobias Siegfried is an associate research scientist at the Earth Institute's Columbia Water Center, and an adjunct assistant professor at the School of International and Public Affairs (SIPA).

On the train, she was served a bottle Aquafina water, a brand owned by Pepsi. Shiva contrasts this exchange of water with what took place on the streets of Jaipur at the peak of the drought. Thatched huts were constructed and became places where people could receive free water in earthen pots. In this brief book, Shiva lucidly details the severity of the global water shortage. Thorough in her research, Shiva gives straightforward reasons for the global spread of water scarcity and water famine: For Shiva the roots of the crisis stem from a conflict over two separate value systems. One sees water as a communal resource that should be freely available and diligently conserved; the other sees water as a market good to be possessed, bought and sold. The market proponents argue that the water crisis can be alleviated by privatizing water: The subtitle of the book, Privatization, Pollution and Profit, should make it clear where Shiva stands. She offers Bolivia as a stark example of how privatization can affect a community. In , on the recommendation of the World Bank, the water systems in Cochabamba, Bolivia, were privatized. Government subsidies were lifted and International Water, a subsidiary of Bechtel, took over. Massive public protests began and continued despite media censorship and killings of protestors. Bolivia proved to be an exemplar of privatization resistance: Shiva does not soften her analysis by suggesting that privatization catastrophes are well-meaning failures. She does not sympathize with the efforts of corporations to profit at all costs: As one would expect from the author of Stolen Harvest: The Hijacking of the Global Food Supply, Shiva does not gloss over the relationship between food and water. In Chapter 5, Shiva discusses how industrial food production and water waste go hand in hand. As chemical fertilizers replace organic fertilizers, soil loses its capacity to retain water. Reservoirs are depleted and rivers are diverted, resulting in water logging and salinization. The Aral Sea is six times saltier than it was several decades ago because the rivers feeding into it have been diverted to water-intensive crops. The fish catch in the Aral was once 25 million tons a year. Now it is zero. Shiva describes how many conflicts are in fact water wars masked as ethnic or religious conflicts. Shiva cites the West Bank as an example of water apartheid: If you control water, you control life. Water Wars covers an impressive amount of territory for so slim a volume. One chapter is dedicated to theories on water rights, another to climate change, another to dams and control of rivers, another to the role of the International Monetary Fund and the World Bank. Always, Shiva refers back to communities in her homeland, India, pointing to their water conservation practices, their culture of giving and exchange, and their reverence for both water and soil. The appendix lists sacred names for the Gangesâ€”graceful names like Lila-lamghita-parvata Leaping over mountains in sport and Khandendu-drta-sekhara Having the crescent moon as a crest. After such a potent and dynamic analysis, the array of names is a refreshingly subtle suggestion that there is much more to water than charts and profit reports can convey. Constantine Markides is a freelance writer and novelist living in Portland, Maine.

6: A Water War in Asia? by Brahma Chellaney - Project Syndicate

Towards the end of Water Wars, Shiva recounts a Hindu myth that helps explains why the Ganges is sacred to Hindus. According to the myth, the Ganges originated in heaven and descended to earth to transport the ashes of King Sagar's 60, sons to heaven.

As lower riparians, India and Bangladesh rely on the Brahmaputra River for water, agriculture and livelihoods. Chinese dam-building and water division plans along the Yarlung Zangbo the Brahmaputra in India is a source of tension between the two neighbours. The potential for conflict over water between China and India is increased as long as the two countries do not improve communication and co-operation. Summary China and India are competing for resources along the Brahmaputra River, which flows through parts of Asia that have been prone to territorial disputes. South Asia is water scarce. Mass dam-building and diversion plans are a source of major tension between India and China. The potential for conflict is low between the two Asian giants; however, a combination of regional competition and water-sharing tension could still threaten regional stability. It is imperative that China, which lies upstream, does not create a situation where India believes its future water security is significantly threatened as a result of damming and other hydro-projects along the Brahmaputra. India relies heavily on Tibetan water, as it receives almost one-third of its water supply. Due to multiple causes, both India and China are stressed for water. This water stress contributes to tensions between the two countries. Climate change, depleting aquifers, rapid population growth and urbanisation are placing pressure on scarce water resources within the two countries. Tibet has remained an underlying issue that has an impact on Sino-Indian relations. Coupled with on-going border disputes over Arunachal Pradesh, tension over water has continued to strengthen since China began constructing dams upstream. In June , a dam burst in Tibet causing flash floods downstream in Arunachal Pradesh. The floods resulted in 30 casualties and seriously damaged Indian infrastructure. A lack of hydrological data exchange between the two countries meant that India was not aware of the approaching flood. Some Indian government officials believe that the flood was intentionally caused by China and suggested that it would knowingly use water as a tool to gain leverage over India. Satellite imagery later confirmed that the dam breach was, in fact, an accident. The Chinese Government announced in that it would commence building its Zangmu hydroelectricity dam along the middle reaches of the Yarlung Zangbo. The project was perceived by India as the start of Chinese river diversion projects that would ultimately dry up the Brahmaputra. China refused to divulge hydrological information to India on the grounds that it was deemed to be internal matters. When it eventually released information, much of it was contradictory. Speculation of an upcoming water war began to grow in India. By the end of , all six power-generating units of the Zangmu Dam became operational. India, however, remains wary. India will experience an increase in its demand for food, water and energy. Although the large Chinese population is growing at 0. Although water resources are scarcer in India, the country does not have a water supply problem, but rather poor water management practices. India will experience increased water scarcity unless it takes action to alleviate demand-side pressures and expand its water supply. India India receives a large amount of rainfall during its monsoon season, but it lacks the ability to store this water. Climate change threatens to affect monsoon intensity and frequency, which would prove detrimental to agricultural production and significantly affect Indian food security. Such an event would exacerbate tensions between India and China, particularly if India believes Chinese actions upstream are aggravating the situation. China China is both water rich and water poor. It sources its water from glaciers, groundwater and surface water, but also has an uneven distribution of water that creates huge scarcity throughout certain regions. Both industries are located in the arid north. With high rates of population growth and urban development, China has an insatiable demand for energy, food and water. Water scarcity threatens the supply of all three of these needs. Chinese water is heavily subsidised, leading to an undervaluation of the resource. Consumers have little incentive to save water and industry sees it as an expendable resource, which leads to overuse and rising water pollution. The more developed China becomes, with higher disposable incomes, urban dwellings and domestic water use, as well as higher meat, vegetable and fruit consumption, the more water demand will increase. Increasing

rates of urbanisation mean that greater domestic water consumption will come from the transition of water use from village wells to showers and flush toilets. The Chinese Government must meet the water demands of its rapidly increasing urban population and its industrial sector without compromising agricultural production and food security. Strategic Interests along the Brahmaputra River Both countries are faced with increasing water demands from a rising middle class. Irrigated farming, while attempting to ensure food security, uses large amounts of water, along with the growth of water intensive industries. Climate change is also adding significant pressure to regional water and food security. Glacial melt in the Himalayas is threatening future water security not only for India and China, but for the majority of South and South-East Asia. The drying up of the Brahmaputra, due to infrequent rainfall, also threatens water supplies and will have an increasingly detrimental impact on health as it could increase the frequency of water-borne disease outbreaks. Global competition for energy resources is driving the need for hydropower development. Hydropower is a clean alternative source of energy and will enhance economic growth in China. The technology is also said to be reducing the income gap between its eastern and western provinces. Hydropower technology is facilitating greater regional engagement, with countries like Thailand purchasing electricity from China. Opponents of the plan argue the proposed rerouting of the Brahmaputra at the Great Bend would significantly decrease the quantity and quality of water flowing into India. Salinity will increase, posing a threat to agriculture, aquatic life and livelihoods downstream. Experts warn that if China proceeds with the project, water flow will be reduced by 60 per cent; enough to create serious consequences downstream. Although China has dismissed its plans as economically and environmentally unfeasible, great suspicion exists within India about the project. China claims the economic costs and environmental risks are too great for the project to go ahead. China has the potential to use water as a political tool. From the Indian perspective, Chinese damming and potential hydro-diversion projects are an imminent threat to water security. If activity were to escalate, the potential for conflict is likely to increase. Ramesh Bhattacharji, a former Indian bureaucrat, told The Diplomat that the project is unrealistic because of its high financial and environmental costs. If the diversion project were to go ahead, India would have little reason for concern, as the Brahmaputra receives 70 per cent of its flow from rainfall within India. Ramaswamy Iyer, former Secretary of Water Resources with the Government of India, claims, however, that this water entering the Brahmaputra only occurs during monsoon season. As little as a ten per cent change to the upstream flow could have detrimental consequences for India. The dam is located in the middle reaches of the river and has the capacity to generate 2. Five other generating units of the project were completed in China has stated that it will continue to liaise with its downstream riparian, following Indian concern that the dam could disrupt downstream water supply. If this occurs, and is taken seriously by both sides, the potential for conflict would be reduced. The Potential for Conflict Established and planned hydropower and water diversion projects along the Brahmaputra are a security concern that has the potential to impact on Sino-Indian relations. China has not yet signed any multilateral treaties, nor did it sign the UN Watercourses Convention that set the legal framework for rules and co-operation between more than nations and their relevant international watercourses. The Chinese media has accused India of trying to gain the support of the international community and has also highlighted that India itself uses the Brahmaputra without concern for lower riparians. The damming has increased soil salinity and affected agriculture, forcing many Bangladeshis to relocate to north-east India. If upstream damming were to have an effect on the flow of the Brahmaputra, the potential for ethnic tension in India and Bangladesh could increase. Chinese activity upstream has the potential to exacerbate water scarcity downstream, which, in turn, could lead to mass migration that will affect the entire region. China maintains an advantageous position as the upstream riparian of the Brahmaputra. It can, theoretically, choose to withhold hydrological information and can build infrastructure to intentionally prevent water from flowing downstream. India exports raw materials and imports Chinese electronics and manufactured goods. The potential for conflict could be seen as relatively low, given their interdependence. Chinese apprehension toward a deepening military connection between the US and India may cause China to use its upstream advantage over India in the future. The potential for conflict remains low, as China is increasingly demonstrating a willingness to co-operate with downstream riparians. Its willingness to engage with transboundary water issues, however, remains susceptible to its political climate

and still has the potential to be used as a tool for negotiation. Many of the major rivers originating in Tibet supply water needed for agriculture and livelihoods downstream in many Asian countries. Any plan by China to redirect the flow of this water would be provocative and risk increasing geopolitical tension. China is not party to any international agreement that it is obliged to comply with. Co-operation along the Brahmaputra: After the partitioning of India and the creation of Pakistan in , 80 per cent of the land irrigated by the Indus was part of Pakistan. The river, however, first flows through upstream India from the Himalayas. Following years of turmoil, India and Pakistan signed the treaty which includes the division of eastern and western rivers, safeguards to ensure the flow of the river through both India and Pakistan, the exchange of hydrological data and the establishment of a permanent commission to oversee the implementation of the treaty. In the event of a dispute, India and Pakistan must both seek advice from a court of arbitration. As a result of the treaty, both countries have been able to peacefully create dam storage solutions along parts of the Indus River. Despite frequent challenges to India-Pakistan bilateral relations, the treaty was designed to manage conflict over a shared water source. A water-sharing treaty between the two neighbours shows that bilateral water co-operation in hostile circumstances is achievable. While the treaty was possible between India and Pakistan, the situation is different between India and China. Competition between the two powers creates a different relationship for water sharing; one that is different from that of India and Pakistan under the IWT. Beijing and New Delhi signed a Memorandum of Understanding MoU in , recognising that trans-boundary rivers are an important asset to the development of all riparians. Both countries agreed to strengthen communication and strategic trust. China agreed to provide more hydrological information to India at the start of the flood season. Despite the most recent MoU there have been earlier ones information sharing must improve further if Indian apprehension over Chinese activity on the Brahmaputra is to be reduced. Fear has been created in India because of previous tendencies where the Chinese Government has been unwilling to provide details of its hydro-projects, and when it did, gave contradictory information.

7: This Is Where The Water Wars Of The Future Will Be Fought | IFLScience

The water wars of Delhi Sarnath Banerjee talks about his graphic novel, "All Quiet in Vikaspuri", set in the a future where Delhi's residents go to war over water Omair Ahmad, March 9,

He spoke to thethirdpole. That is the first question that hits you about this book, the urgency, centrality of water in the lives of the people you have documented. Has this been a developing concern, a new concern? Some people would remember how living in Delhi in the s and 90s was centred around storage and management of water. In most neighbourhoods, it was supplied only for a couple of hours during morning and evening. People woke up in the night to switch on their booster pumps, and in the evening let go of their social plans if it clashed with the water timings. It was like having a small baby. He would gleam with satisfaction if he did, and if not he would slip into a sullen silence until next morning. He would say that it gave purpose to existence, a chore to retired people, a responsibility to the youth and it brought human beings back to their agrarian roots. This secular ritual prevented them from becoming maniacally intolerant, rabid trolls. In the new world, the water problem is a distant memory thanks to a better distribution system if not abundance. Now my downstairs neighbour can keep his pump on for hours letting his tank overflow an Olympic-sized swimming pool a day. I did alert him a few times, he politely apologised, reminiscing the terrible water problems of the 90s. Once in a while he does switch off the pump, but slips back to his habit. Later, I understood, that somewhere at the back of his conscious mind he thinks that by wasting gallons of water he will forget the trauma of the 90s drought. All that water is needed to wash off that faint yet resolute stain. Thirst and ill in Delhi OA: Delhi is the city on the Yamuna, but you have made the mythical river Saraswati as one of the main themes of the book, why is that? Remember the river interlinking project that the current government wanted to initiate? The Mughals and the Delhi Sultanate never used the Yamuna for drinking water, preferring rain harvesting, yet the river lends Delhi its personality and history. The river is destroyed to the point that it is best left in the hands of the environmentalists. Yamuna is too real for me. My narrative always tends towards the unreal. Can you tell us about the Psychic Plumber? Are they so important in Delhi? I am really obsessed with plumbers. I like their confidence, swagger and philosophy. Left to myself I would continue drawing and writing them all my life. My fascination ranges from the Harappan times to the intricate pipe-works of south Delhi houses who do not have a plumbing blue print. It is as if plumbers are part of a larger cosmic design only to be unravelled by the psychic skills of a Kalkaji plumber. I learnt the real spirit of physics by watching plumbers, my brother learnt Hindi by communicating with a conference of plumbers, trying to solve the plumbing mystery of my flat in Delhi. The soul of a building is in its plumbing. Take away the plumbing and a building is without a circulatory system. Was there some event that led to this train of thought? Which is okay by me, I never had a head for it. Bullying has replaced rationality. Outrage has surpassed reason, the thugs are back. My premise is the unreal. Lately it feels that the unreal has become more tangible than it ever was. Therefore, using the unreal one can create comment. There are precious few ways to approach the closed mind. I have never seen the country so divided in my adult life. Yes, there has always been a conservative lilt, but I remember I could still have a conversation with a rightwing, ex-Rotarian, cardiologist as much as I could with a closed-up communist who could only understand the world through class-struggle. But now the swords are already drawn even before the battle is announced. You are familiar with a number of large cities across South Asia â€” Calcutta, Delhi and Karachi â€” are these types of problems, and ways of looking at water, present across these cities, or is this a Delhi issue? In Calcutta the only water problem that I experienced was the big incidents of flooding that happened though the 80s. As children we fantasised about kayaking through Southern Avenue, where ground-floor balconies would lead to infinity pools, all the way up to the lakes and maybe stretching over to the Sundarbans. We all got thigh-length Duckback gumboots as birthday present. Great literature was written about flooding. None of that happens anymore. In Karachi, the beautiful neighbourhoods of Defence and Clifton, their lovely architected houses and landscaped gardens are watered by tankers. Not unlike the massive apartment societies of Gurgaon. In my book I mentioned residents of Gurgaon, some of whom believe that water along with electricity, maids, gas, gyms are all provided by the

building.

8: The Disappearance of the Ganges

Indeed, battles over rights to rivers, bodies of fresh water, and the sea are as old as war itself. However, it's now becoming clear that water resources will turn out to be an increasingly big.

As we had explained, the glacier above Gangotri, from which the Ganges River starts, has retreated about one kilometer in the past 20 years or so. In fact, it has been determined that these glaciers are retreating faster than anywhere else on the planet. Professor Syed Hasnain, the main author of the report, relates that all of the glaciers in the middle Himalayas are retreating. He warns that many of the glaciers in this region could disappear by New fears are that the meltwater could produce catastrophic floods as mountain lakes overflow. As I explained in my book, The Vedic Prophecies: A New Look into the Future, the Vedic texts reveal that such holy rivers as the Ganges will dry up and become only a series of small lakes, at best. In this way, it may practically disappear, as did the Sarasvati River. This latest report surely seems to show the possibility of this happening sooner than expected. This also shows the reason that the origination mouth of the Ganges, at the ice cave called Gaumukh above Gangotri, is retreating farther away as the years go by. So those travelers who wish to journey to this mouth of the holy Ganga will have to travel farther up into the hills as time goes by. This also indicates why this mouth of the Ganges is always changing in its appearance. Getting back to the way the glaciers are retreating, at the University of Colorado in Boulder, a research team has found that the mountain glaciers are diminishing in the West as well. The Major glacier at Mt. It stated that there were more than glaciers in Glacier National Park in Montana back in Now there are only 50, and it is expected that these will also disappear within the next four decades. Glaciers, because of being too solid and stable to show short-term variations in climate, are particularly good barometers of global warming. In regard to the Vedic tradition, it explains that the Ganges fell from heaven to earth and was caught on the head of Lord Shiva. This was to prevent the intense damage that the force of it would cause to the earth if it fell directly on to the planet. This took place at Gangotri, where the water backed up into the mountains where much of it froze. The course of the Ganges is said to still flow through the universe and come down to the earth planet. However, much of the river water comes from underneath the glacier. If the glacier at Gaumukh does continue to recede or melt away, and if the Ganges would ever cease its flow or begin to dry up, it would certainly mean the end of an era and a drastic affect on the Vedic spiritual culture as we have known it in India. Indeed, it would never be the same. The water that flowed downstream and over the falls at Gangotri was really fierce. This does not mean that there was merely more water in the river, but that the glacier was melting faster than previously. There are a few reasons for this. One of the issues is that India is building dams on all of its rivers. Along the Ganga there is a dam at Tehri, which has created a green lake that backs up for miles along the river. As was explained to me, this lake now somehow attracts more rain to that area, leaving the clouds drained by the time they get up toward Gangotri. This also leaves the region of Gangotri and Gaumukh drier than before. This also prevents the Gaumukh glacier from being replenished with the rain or snow that it normally would receive. Thus, the rate of it receding away from Bhojbasa or Gangotri is increasing. This is not only from the general affects of global warming, but now also due to not being replenished by rains and snowfall that add water to the glacier. So some people are thinking that the Ganga may reduce its flow, or even stop flowing if this effect increases, in as little as years. When I was in Gangotri ten years ago, the Ganga had a steady but kind of meandering flow over the falls. But now there is lots of water that descends rapidly and powerfully. However, some people do understand that this is a bad sign over the long term, and that it may only deplete the glacier that much sooner. India is making electricity from its hydro-electric dams along its rivers, so much so that it is selling electricity to other countries, even China. Yet it is odd that they cannot even supply steady electricity to places like Gangotri, which is in a blackout about half the time. Other cities in Uttar Pradesh have a similar fate with regular blackouts. But the building of dams is causing environmental changes, the future affects of which are unsure. Thus, as the glaciers recede and dry, the source of the river water will begin to disappear. He reports that the glacier itself has receded 90 feet in three years. A separate study found the Parbati glacier, one of the largest in the area, to be retreating by feet a year during the s. Another glacier that Mr. Dobhal has

tracked, known as Dokriani, lost 20 percent of its size in three decades. Between and , its beginning or snout inched back 55 feet each year. Similar losses are being seen around the world. Thompson, a glaciologist at Ohio State University, found a 22 percent loss of ice on the Qori Kalis glacier in Peru between and Its upper reaches accumulate snow and ice when it is cold; its lower reaches melt when it is warm. Its long-term survival depends on the balance between the buildup and the melting. Glaciers worldwide serve as a barometer for global warming, which has, according to a report in by the Intergovernmental Panel on Climate Change, been spurred in recent decades by rising levels of greenhouse gas emissions. Even the Himalayas have grown measurably warmer. A recent study found that mean air temperature in the northwestern Himalayan range had risen by 2. More to the point, India stands to bear some of the most devastating consequences of human-induced climate change. Of course, we know that glaciers all over the world are melting away, but the Gangotri glacier is the main source of the Ganga River, which directly affects all of Vedic culture in various ways. Plus, the Vedic Puranas have also predicted that the Ganga will one day cease to flow and dry up, similar to what happened to the Sarasvati, which is said to now flow underground. A few points mentioned in the article included: In what is being termed a result of the first ever authentic study of the famous Gangotri glacier in the Garhwal Himalaya, the glacial landscape receded by It was the first of its kind study of the Gangotri glacier carried out using the highly sophisticated Global Positioning System," revealed Dr. Miral, a scientist at the Glacier Study Centre of the G. Miral attributed the Gangotri glacier retreating at an unusually fast pace to global warming. Similarly, the rate at which the suspended sedimentation that the snowmelt run-off of the Gangotri glacier carries with it, comes to around Miral said the Gangotri glacier "is receding so fast that even Gomukh, the snout of the Bhagirathi river, which is a popular religious destination for the Hindus, has ceased to resemble the mouth of a cow, for which its revered. But an industrial lifestyle that depends on oil and the numerous artificial necessities that we have all become accustomed to, will certainly produce the pollutants and exhaust that will affect the environment at an increasing rate. If we worked harder at our spiritual development, natural realizations in our consciousness will occur that will guide humanity to a higher level of activity that will have a much less dangerous and contaminating output toward the environment and each other. This, of course, could lead into a much deeper conversation on the matter. It is further reported in the India Tribune December 26, that in the village of Stackmo, Ladakh, 92 year old Phuntchok Namgyal remembers when they used to get water from the glaciers from April onwards, but now there is a water shortage even in early summer. The glaciers that did not melt during summer and would reach Stackmo are now receding further and further away. Professor Syed Iqbal Hasnain of the Energy Research Institute, and who has been studying the glaciers for several years, says that the future prospects on the Hindukush-Himalayan-Tibetan glaciers seem to be getting worse. He says that scientists project an average of a 43 percent decrease in the glacial area by and a 75 percent decrease by the end of the 21st century at the current rate. Tundup Angmo, climate change co-ordinator at Geres, an NGO active in the area, explains that glaciers in the Himalayas are receding faster than anywhere else in the world, at 70 meters per year. Pest attacks on crops are being reported in newer areas across Ladakh. Violent monsoons that cause damage to crops and the human habitat are also being reported in the Himalayas. Snowfall has also become less abundant, thus providing less water for the Indus River. This will also decrease the effectiveness of the hydro-electric power generators over the long term. However, Angmo explains that what is undeniable is the steady rise of the recorded temperatures over the past three decades. So winters are slightly less severe while summers are getting longer and warmer. So, though the Vedic prophecies explain that the Ganga and Yamuna Rivers will disappear in another 5, years, the changes seem to be taking place at an increasingly faster pace. Yet, in places like Madhya Pradesh, they are facing an acute shortage of drinking water which has reached crisis levels. As reported in India Tribune, June 23, , households of many towns in the vicinity of Bhopal are receiving only a trickle of water, and that only once in every three days. In the rural areas where water is only supplied once in a week, it is more alarming. When it is available, it comes through for only minutes. Officials estimate that nearly 65 million people, or 70 percent of its population, are enveloped by this crisis. Furthermore, the quality of the water is also troubling, where sewage is getting mixed in to the water in many places, such as Bhopal. Bhopal is also hit by this water crisis, but mainly because of its population increase

which has grown from , to 2. With such a population increase in just ten years, then it could grow to over 5 million in another decade. If other districts in India are growing as quickly, then the water crisis will only continue to spread. This brings to mind the predictions that, just as there may be wars over oil today, there will be water wars in the future. As the government of India is already rationing water in as many as urban centers, tens of thousands of people are buying water from private sources. For example, six families in Bhopal are jointly purchasing water from a tanker for Rs. But another problem that India is facing is that ground water levels have been receding for years, so much so that even thousands of hand pumps are no longer operational because they no longer can reach the water. Thus, this water problem seems like it will only increase if some serious strategy is not developed soon.

9: Water Wars | Ashok Swain - www.enganchecubano.com

There have been regular predictions that "water wars" between Asian states will be a major security threat to the continent in the coming decades, particularly over the Brahmaputra river that.

WATER WARS AND THE GANGES pdf

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