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Water and its Complex Relationship with Peace: From Scarcity to Stability

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Abstract

Water is a critical resource whose management is essential for fostering peace and stability. This paper explores the intricate link between water and peace, emphasising the need for integrated and interdisciplinary approaches to address water-related challenges. Lack of available water exacerbates poverty, inequality and conflict, necessitating effective governance and sustainable management practices. Historical instances of water cooperation illustrate its potential as a peace-building tool. The paper argues for robust policy actions (including legal frameworks), infrastructure investment and climate adaptation strategies to ensure equitable access and promote socio-economic stability. Ultimately, water management emerges as a pivotal factor in achieving sustainable peace.

Keywords: Water and/for Peace, Water Cooperation, Water Security, Sustainability, Transboundary Water Resources, Sustainable Water Management

World Water Day is celebrated annually on 22 March to promote eco-friendly management of water resources. This year's theme was 'Water for Peace'. The link between water and peace is inextricable much like the relationship between peace and violence. Throughout human history, the pursuit of peace has been a recurring aspiration, yet achieving it has been difficult, if not completely elusive. In the 21st century, its interconnected risks and vulnerabilities achieve peace with long-term objectives, which necessitates a comprehensive approach that address the intertwined dimensions of politics, social dynamics, economics, and the environment. Only by considering and integrating these aspects can states and societies lay the groundwork for durable and sustainable peace. Water is very much the *pièce de résistance* in this endeavour, and it is

increasingly becoming evident that water cannot be understood in isolation from a variety of broader contextual issues—particularly energy security, food security, health and also wealth generation. This greatly defines the water discourse of the 21st century.

Facts stand firm and do not deceive. An estimated 2 billion people worldwide lack access to safe drinking water, which is a fundamental human right. By 2030, 150 million people a year would be affected by floods and droughts, with serious repercussions on livelihoods and economies. The fact that 80 per cent of jobs are water-dependent underscores the importance of sustainable water management and conservation efforts to ensure socio-economic stability. About 450,000 children under five years of age die annually due to diarrhoea resulting from inadequate water, sanitation and hygiene.[i] The above statistics are indeed sobering.

It is important to recognise that water's significance extends beyond mere sustenance and economic utility; it also holds cultural, social and ecological value. Moreover, equitable access to water and the mitigation of water-related conflicts are essential components of sustainable development and peace-building efforts. The text presents observations elucidating why water for peace has both conceptual and functional dimensions. It highlights some of the broad characteristics of water. Lastly, the text also suggests the key policy actions to align sustainable peace efforts with the underlying causes of water challenges. Amid the profound challenges of conflict and development, water policies need a thorough assessment and integration with climate considerations.

Peace through Peaceful Means

Water has multiple users and usages leading to layered competition and tensions. Rivalry over water is an age-old concept and is ingrained in our language; the word rival originates from

the Latin word 'rivalis', meaning 'person using the same stream as another'. The phrase 'to sell someone down the river' means to betray someone. Undeniably, a stable water supply is fundamental for political and socio-economic stability not only within a country but across regions. It is vital to recognise how poverty and inequality, social tensions and conflict can exacerbate water insecurity. Ensuring a secure and equitable water future thus becomes imperative for fostering prosperity and peace for all.

It is widely acknowledged that peace extends beyond merely the absence of war or violence. The development of peace studies introduced the concepts of positive and negative peace. The former involves achieving peace through peaceful means such as mediation, cooperation and structural integration; while the latter entails maintaining peace through elements of coercion, force or bargaining. Since water crises pose significant risks to world peace and stability, it follows—though not necessarily adhered to—that the resilience of water for peace can best be achieved through positive peace initiatives. The works of the Norwegian peace researcher Johan Galtung hold particular relevance. He famously said, 'Peace is something you make with your adversaries, not with your friends.'[ii] Galtung drew inspiration from Gandhi's pacifism and satyagraha, as well as from the economist Kenneth Boulding, who identified institutions and structures within the system that either fostered stable peace or worked against it.[iii]

There is a growing understanding of the historical and cultural significance of water in shaping societies and fostering peace. Water has frequently served as a conduit for cultural exchange, trade and diplomacy, facilitating connections between diverse peoples and promoting understanding and cooperation across boundaries. To recall, it was Buddha who mediated a dispute over the waters of the Rohini river between the Sakhyas and Koliyas clans. It underlines the symbolic and practical

importance of reconciliation and societal harmony. Buddha's final act was to become a *parivrajak* (a wanderer) and go into exile. Dr Bhimrao Ambedkar writes about this in *The Buddha and His Dhamma*, his last work. There is a very instructive dialogue between the Senapati of the Sakhya clan and Gautama Siddhartha, which Ambedkar narrates. Addressing the members of the Sangh, the Senapati said:

> Our people have been attacked by the Koliyas and they had to retreat. Such acts of aggression by the Koliyas have taken place more than once. We have tolerated them so far. But this cannot go on. It must be stopped and the only way to stop it is to declare war against the Koliyas. I propose that the Sangh do declare war on the Koliyas. Those who wish to oppose may speak.
>
> Siddhartha Gautama rose in his seat and said:
>
> War does not solve any question. Waging war will not serve our purpose. It will sow the seeds of another war. The slayer gets a slayer in his turn; the conqueror gets one who conquers him; a man who despoils is despoiled in his turn.[iv]

In his book, Ambedkar strongly advocates democratic principles to comprehend the relationship between humans and nature. He argues for greater egalitarian and equitable access to natural resources, aiming to mitigate the ecological injustices perpetuated within India's social structure.

From a political and diplomatic standpoint, the complexities of sharing water resources between states are paramount. The interface between water and peace is perhaps best illustrated by its transboundary and territorial nature. Globally, there are 276 cross-border freshwater basins and a similar number of cross-border aquifers. Over 3 billion people worldwide depend on water that

traverses national boundaries, accounting for approximately 60 per cent of all freshwater resources.[v] Yet, out of the 153 countries that share water resources with their neighbours, only 24 report having cooperation agreements in place.[vi] The disparity underscores the fragility of peace when it comes to sharing waters. The water-war hypothesis, based on the preciousness and possessiveness of water, does raise concern not only with countries that do not have formal water-sharing agreements but also with those that have water treaties.

John F. Kennedy once said, 'Anyone who can solve the problems of water will be worthy of two Nobel Prizes—one for peace and one for science.'[vii] Perhaps in the future, there might even be a Nobel Prize for Water. Kennedy's words ring true even today. Water issues span various disciplines and perspectives. For some, it is a matter of morality, recognising access to clean water as a fundamental human right, while others see it purely as a practical necessity for sustaining life. Even among those focused on practical solutions and policy approaches, there is a lack of consensus on how to address the challenges of water. The former President of the Soviet Union, Mikhail Gorbachev, renowned for his advocacy of *glasnost* (openness) and *perestroika* (restructuring) as pivotal principles for societal and political renewal, echoed similar sentiments in his 2009 speech to the European Parliament, emphasising the integral role of addressing water issues in global environmental strategy.[viii]

Political leaders and their outlook on water is an important methodology of understanding water management for peace-building and development. US President Franklin D. Roosevelt used water and river basin development to move the US out of the Great Depression (1929–1939) by generating employment and contributing to steady economic development. Jawaharlal Nehru in India's early phase of development was concerned primarily with the supply-side of water and

largely addressed it through the grand hydraulic engineering narrative and the dominant Tennessee Valley Authority (TVA) influence of science and modernity. One recalls Nehru's enthusiasm over big dams as 'temples of the new age' and a 'symbol of a nation's will', while commemorating the Nangal Canal in 1954.[ix] However, a few years later, in 1958, Nehru had self-corrected his views, reasoning the perils of 'giganticism' and the value of smaller schemes and public cooperation.[x] But by then the water development course in India was deeply set and large projects continued to be planned and built. Lee Kuan Yew in his 30-plus years as the Prime Minister of Singapore showed continued interest in water. He posed a challenge to his engineers, 'Suppose we could capture every drop of rain in Singapore, could we be self-sufficient?'[xi] For Indira Gandhi, water was a means to an end. The ends were how economic growth could be increased so that employment could be generated and a better quality of life for Indians could be achieved.[xii]

Prime Minister Narendra Modi sees water as an influencer and an enabler in the 'overall benefit' of the country. At its core are the values of governance, scientific detailing, technological development and rationality of inclusive economic growth. On the other hand, going back into history, Mao Zedong had a very different outlook. He would often state, 'nature is an enemy that had to be beaten' and that 'man must conquer nature'. Systematically, since the 1950s, Mao's leadership created a hydraulic society, with control of water supply for irrigation as the basis of the Chinese mode of production and of a powerful, exploitative bureaucracy. Even today the Chinese leadership is notoriously known to mix 'compliance' with 'intimidation'—what Antonio Gramsci termed 'a mix of force and consent'.[xiii]

There are several questions one asks when it comes to water for peace, particularly as pressure on water mounts and the potential for tension and disputes grows. Can peaceful cooperation on water flow into peaceful cooperation in other sectors? What can be done to bring water and peace closer?

First and foremost, addressing water-related challenges would necessitate education and awareness initiatives. Establishing a global education network focused on water issues would be highly beneficial. For example, the hydrological cycle or the water cycle, serves as a universal common good, transcending cultural and national borders. It encompasses all processes through which water moves between the Earth's surface and the atmosphere, manifesting as precipitation. While elegantly simple, its functioning holds profound implications. However, the realisation of such a network remains in its infancy, requiring global consensus. Given that anything pertaining to the global commons may raise concerns about sovereignty and accountability, achieving agreement is essential. Effectively addressing water issues hinges on adequate awareness and well-informed action. Without such understanding, endeavours risk being misguided. Additionally, cooperation based on transparent information sharing is crucial. The establishment of a global information system is therefore imperative, complemented by similar systems at the national and regional levels. Trust, a cornerstone of peace, is fostered through knowledge.

German philosopher Johann Goethe said, 'water is a friendly element for those who are familiar with it and know how best to treat it.' There are five broad characteristics of water that one should be aware of and enlightened about in order to frame well-rounded water policies.

Water as a shared resource: Water is the largest shared resource globally, with nearly 60 per cent flowing across or under political boundaries. Effective water management necessitates significant inter-state cooperation and understanding.

Transboundary nature and unruliness: As a transboundary resource, water remains inherently unruly and does not adhere to universally accepted rules. While procedures based on principles and norms exist, agreements among basin countries ultimately stem from political dynamics.

Potential for cooperation: Despite its unruliness, states have demonstrated a willingness to cooperate on water management. Even longstanding adversaries have negotiated water agreements, showcasing potential for constructive engagement.

Interconnectedness of national and international water issues: Water issues within countries directly impact water dynamics between nations. Addressing domestic water challenges is crucial for fostering stability and cooperation between countries.

Environmental considerations: Water is a mediated resource. Its extraction from ecosystems necessitates a consideration of environmental flows, ensuring that ecosystems receive adequate water to sustain their health and functioning. Dee Denver writes in his recent book, *The Dharma in DNA*:

> The rain became the tree. Water molecules in the air condensed into droplets falling onto the heart-shaped leaves…The tree became the rain. The water entered the roots and then coursed through the circulatory vessels in the tree, up and away from the roots hidden underground.[xiv]

Why Water for Peace?

Here are the four observations elucidating why water for peace has both conceptual and functional dimensions.

First: Given the level of water stress, effective water management is crucial for socio-economic development. In India, for example, where nearly 60 per cent of the population relies on the agricultural sector, which itself heavily depends on water resources, proper water management is paramount. As the government aims to boost manufacturing levels to create jobs, industries such as food processing, organic chemicals, thermal and solar energy, steel and mining, and fertilisers—which are significant contributors to the Indian economy—will demand more water. Moreover, with increasing urbanisation projected to raise the urban population from 36 per cent to 43 per cent by 2035, the demand for water in towns and cities will further intensify, as urban residents typically consume more water per capita compared to rural residents.

Second: The water sector cannot be viewed in isolation; it is intricately linked and interdependent with energy and food production. This trio—water, energy and food—forms an inseparable nexus, essential for human existence. Addressing challenges within this nexus demands an interdisciplinary approach and the involvement of multiple stakeholders. Due to its existential significance, this interconnectedness calls for democratised and decentralised policymaking processes—Ambedkar's ecologically democratic thought process is instructive. The ultimate goal is to ensure the reliability, accessibility, and affordability of water, energy, and food resources for all.

Third: Water holds the key to the future of food security. However, global water resources face significant threats in adequately sustaining the world's population and addressing hunger and malnutrition. With the world population estimated to reach 9.8 to 10 billion by 2050, agricultural production must increase by 50 per cent to meet the rising demands. This growth trajectory implies 30 per cent higher water withdrawals than current levels. In India, where agriculture consumes

about 80 per cent of available water resources, the situation is particularly acute. India ranks among the most water-stressed countries globally, with an annual average per capita water availability plummeting from 6042 cubic metres since its Independence to 1486 cubic metres presently—an alarming 75 per cent decline in over 75 years since India's independence. The country's population is expected to soar to 1.5 billion by 2030 and surpass 1.7 billion by 2050, placing additional strains on water and food resources. India's vulnerability to climate change compounds these challenges. With its vast population and existing inequalities, India faces heightened risks from climate-related events like heat waves, which can significantly impact water availability for agriculture. Agricultural systems are disproportionately affected by climate disasters, absorbing 63 per cent of loss and damages as compared to other sectors. Extreme weather events such as storms, floods and droughts pose severe threats to crops, livestock and agricultural infrastructure. Climate change projections indicate substantial reductions in wheat and maize yields, further exacerbating food security concerns. Without robust adaptations to global warming, climate impacts could slash major crop yields by 11 per cent in the coming decades, underscoring the urgent need for proactive measures to safeguard water resources and ensure food security in the face of climate change.

Fourth: The ramifications of climate change will be particularly pronounced in the water sector. Water is the primary medium, a bellwether through which the effects of climate change are observed and plays a pivotal role in how states mitigate or adapt to sustainable systems. The IPCC Working Group I Sixth Assessment Report (2021) evidenced that climate change is intensifying the water cycle. Some of the observable trends of droughts affecting agriculture will continue, as 'glacial melting, decreased rainfall, and a "thirstier" atmosphere jeopardize sources of freshwater in some parts of the globe'. The Report observed that rainfall will be 'more powerful' and high-impact tipping points 'would drastically change the regional water cycles'. The message is clear

that if warming is limited to 1.5 or 2 degrees Celsius, worst-case scenarios for freshwater could be avoided. A more recent IPCC Working Group II Report (2022[xv]), while assessing key regional risks at different temperature levels highlights, in the case of Asia, 'Risk to food and water security due to increased temperature extremes, rainfall variability and drought'. The significant impact of climate change will be keenly felt on large transboundary rivers like the Brahmaputra, Ganges, Indus, and Barak in India. Alterations in snow and ice-melting patterns, coupled with shifts in rainfall intensity, quantity and monsoon cycles, will have profound and far-reaching effects on these rivers in both the near and distant future. Such impacts will lead to shifts in river flows, both spatially and temporally. Warming temperatures are increasing precipitation in the Himalayas, with every 1 degree Celsius rise resulting in a 15 per cent increase in precipitation, alongside glacial loss. In response, farmers will need to adopt coping strategies, including the cultivation of new climate-resistant crop varieties, adjustments to cropping times and patterns, and adaptation to evolving rainfall patterns and water availability. Furthermore, rising sea levels and changes in rainfall patterns may exacerbate saltwater intrusion in coastal areas, posing a threat to the drinking water security of these regions. As climate change continues to unfold, proactive measures will be essential to mitigate its impact on water resources and ensure the resilience of communities dependent on them.

Policy Action

The Pacific Institute's Water Conflict Chronology documents 285 conflicts triggered by water issues since 2020.[xvi] However, it is important to emphasise that water scarcity alone does not cause conflict; rather, conflict arises when water scarcity amplifies existing social, cultural, political, or economic tensions. Thus, sustainable peace efforts must tackle these underlying

causes. Amid the profound challenges of conflict and development, water policies need a thorough assessment and integrate climate considerations. The key policy actions include:

Conflict prevention and resolution: Implementing proactive measures to prevent and resolve water-related conflicts, including early warning signs, mediation processes and community-based conflict resolution mechanisms. This involves fostering dialogue, building trust and promoting cooperation among water users to address competing interests and to minimise tensions.

Legal instruments: Several legal frameworks can be implemented jointly and synergistically to address water-related challenges. These include the Ramsar Convention on Wetlands (1971), the United Nations Convention to Combat Desertification (UNCCD) (1994) and the United Nations Framework Convention on Climate Change (UNFCCC) (1992), among others. The enactment of the UN Watercourses Convention (1997) should be seen as an opportunity for signatory states to promote serious engagement among those that have not yet become party to cooperative agreements on these critical issues.

Capacity building and knowledge sharing: These help in strengthening institutional capacity and fostering knowledge exchange among water managers, policymakers, researchers, and practitioners. This includes investing in education and training programmes, promoting research and innovation and facilitating networking and collaboration to build resilience and promote sustainable water management practices.

Infrastructure: Many farmers and agricultural communities face the challenge of inadequate infrastructure for storing, treating, moving, and utilising water effectively. One is reminded of the 1957 film *Mother India*, a cinematic portrayal of independent India with a tagline, 'The grain of rice on your table does not tell the grim tale of the toil that grew it.' This portrayal highlighted the

heroism of peasants, often overlooked by cynical urbanites. The rural reality was overshadowed by the government's emphasis on national myths of 'Indianness' during this period, with films like *Mother India* blending political and popular narratives. Today, precision irrigation techniques provide a stark departure from the struggles faced by the toiling farmer. These methods integrate system-scale irrigation infrastructure with on-farm water delivery equipment and data-driven management tools. Such techniques enable precise allocation of irrigation water down to individual field plots and plant levels, resulting in improved crop yield per unit of water used. However, not all innovative practices rely solely on the latest technologies. Managed aquifer recharge (MAR), also known as 'groundwater banking', represents an alternative approach that capitalises on existing natural infrastructure. This method involves collecting excess surface water—such as storm-water runoff, floodwater flows and reservoir releases—to replenish groundwater reserves for future use. By leveraging both advanced technologies and natural resources, agricultural communities can enhance water efficiency and sustainability, ensuring a more resilient future for farming. Equally important is upgrading existing infrastructure, developing alternative water sources and promoting nature-based solutions such as watershed management and ecosystem restoration.

Promote smart-tech and innovation: Securing water for agriculture relies on timely, accurate and consistent information. Remote sensing technology offers an increasingly sophisticated means of systematically gathering data on vital indicators such as crop water usage, land use changes, groundwater levels, and water quality. Drone-based sensors enhance data collection at the field and stream levels. Leveraging big data analytics enables water managers to integrate multiple data streams, from rainfall patterns to demand trends, facilitating the development of predictive models. These models guide decision-making and support early warning systems for potential risks to

water and food security. In India, for example, implementing crop switching practices, such as transitioning from rice to millet and sorghum during the monsoon season (kharif) and from wheat to sorghum in the winter season (rabi), shows promise in reducing water consumption by 32 per cent, enhancing calorie output by 39 per cent and increasing farmers' profits by 140 per cent. Such innovations not only optimise water usage but also contribute to agricultural sustainability and economic viability.

Reduce food wastage: Approximately one-third of global food production is lost or wasted from farm to table along the food supply chain. Lost and wasted food means squandering water resources. A significant portion of food loss occurs during processing and transportation due to insufficient infrastructure for storage and efficient market distribution, leading to spoilage. By reducing food waste by 25 per cent, we could significantly mitigate the water demands associated with food production and provide sustenance for 800 to 900 million people.

Reform subsidies: While subsidies hold importance, their targeting requires significant improvement. Globally, governments allocate approximately $817 billion annually to agricultural subsidies and $320 billion to water and sanitation subsidies. However, these subsidies often prove distortionary, promoting resource overexploitation and environmental degradation, while failing to adequately support the most disadvantaged populations. Calculations indicate that over half of these subsidies benefit the wealthiest 20 per cent of the population, with only 6 per cent reaching the poorest 20 per cent. Efforts to reform subsidy programmes should prioritise equitable distribution and environmental sustainability to maximise their effectiveness and impact[xvii].

Reuse and recycle: Planned recovery and reuse of wastewater for agricultural purposes is prevalent in countries across the Middle East, the Mediterranean, parts of Australia, China,

Mexico, and the United States. Wastewater streams often contain abundant dissolved nutrients, rendering them valuable for irrigation, particularly in peri-urban regions and areas facing mounting pressure on conventional surface and groundwater sources. With proper treatment, the estimated 330 cubic kilometres of municipal wastewater generated annually could potentially meet the irrigation demands of 15 per cent of all cultivated lands.

Change food habit: Transitioning gradually to a more sustainable diet is essential. Ideally, daily water consumption, at an individual level including all domestic uses, should not exceed 1340 litres. As we embark on this dietary shift, it is vital to consider nutritional factors as well. Fortunately, there is a path towards a water-secure future through our food choices**.** An aspirational diet plan could include incorporating millet—a heat-resistant crop that demands minimal water—into our meals. By embracing such dietary adjustments, we not only contribute to water conservation efforts but also ensure adequate nutrition for ourselves and for the future generations.

By prioritising these policy actions, governments, organisations, communities, and individuals can work together to enhance water security, promote peace and build a more sustainable future for all. What the world needs is the engagement of political, business and civil-society leaders.

Concluding Thoughts

Water is what one makes of it. It embodies both competition and cooperation, reflecting the complexity of human interactions with this vital resource. While it can be fiercely contested, it also serves as a powerful catalyst for collaboration and mutual gain. It is essential to recognise that water is the primary force driving life itself, and the interconnectedness of the water cycle with the cycle of life underscores our shared dependence on this precious resource. In navigating the challenges of managing water sustainably, it is crucial to balance competition with cooperation,

ensuring equitable access to water for all while preserving its integrity for generations to come. The intricate relationship between water and peace showcases the urgent need for water management strategies on local, national and international levels. Access to water resources is often a source of tension and conflict, yet it also holds immense potential as a catalyst for cooperation and diplomacy. By addressing water scarcity, ensuring equitable access to clean water and fostering sustainable water governance practices, conflicts can be mitigated. Whether through transboundary water agreements, community-led water projects or innovative water conservation efforts, every step towards water security contributes to a more peaceful and resilient world. Ultimately, water is not merely a finite resource; it is a fundamental human right and a linchpin for peace and prosperity.

Notes

[i] *The United Nations World Water Development Report 2019: Leaving No One Behind,* UNESCO, Paris, 2019.

[ii] Johan Galtung and Dietrich Fischer, *Johan Galtung: Pioneer of Peace Research*, Springer, Heidelberg, 2013, p. 10.

[iii] See Kenneth Boulding, *Stable Peace*, University of Texas Press, Austin, 1978. In his book, Boulding categorises the world social system into two main types of factors: those that *strain* the system and those that *strengthen* it. Factors that strain the system contribute to conflict, instability and deterioration of social cohesion, such as resource scarcity, economic disparities and political tensions. Conversely, factors that strengthen the system promote peace, stability and cooperation, including effective governance, equitable resource distribution and robust social institutions. By understanding and addressing these factors, the resilience of global peace and stability can be enhanced.

[iv] B.R. Ambedkar, *The Buddha and His Dhamma*, Siddhartha College Publications, Bombay, 1957, pp. 46–47.

[v] UN Waters, *Transboundary Waters*, see https://www.unwater.org/water-facts/transboundary-waters (accessed on 14 April,2024).

[vi] UN Secretary-General António Guterres' message for World Water Day, 22 March 2024, UN Press, https://press.un.org/en/2024/sgsm22160.doc.htm (accessed on 14 April,2024).

[vii] Cited from Asit Biswas and Cecilia Tortajada, 'Global Crisis in Water Management: Can a Second UN Water Conference Help?' *River*, May 2023, 2 (2): 143.

[viii] Address by Mikhail Gorbachev, President of World Political Forum, at the Peace with Water International Conference, European Parliament, Brussels, 12 February 2009, https://multimedia.europarl.europa.eu/en/video/address-by-mikhail-gorbachev-president-of-the-world-political-forum-at-the-peace-with-water-international-conference_EP126974(accessed on 14 April,2024).

[ix] Nehru's Speech in Hindi delivered at the opening of the Nangal Canal, 8 July 1954. See *Jawaharlal Nehru Speeches*, Volume Three, March 1953–August 1957, Publications Division, Ministry of Information and Broadcasting, Government of India, August 1958, pp. 1–2.

[x] Nehru's Speech to the Central Board of Irrigation and Power in November 1958.

[xi] Transcript of Lee Kuan Yew's points at the Singapore Energy Conference Dialogue, 4 November 2008, https://www.nccs.gov.sg/media/speeches/transcript-of-minister-mentor-lee-kuan-yew's-dialogue-at-the-singapore-energy-conference-at-raffles-city-convention-centre-in-singapore-4-november-2008/ (accessed on 14 April,2024).

[xii] Asit Biswas, 'Water as An Engine of Regional Development', *International Journal of Water Resources Development*, 37 (3): 359.

[xiii] *Selections from the Prison Notebooks of Antonio Gramsci*, Quintin Hoare and Geoffrey

Nowell-Smith (eds, trans. and com.), International Publishers, New York, 1971.

[xiv] Dee Denver, *The Dharma in DNA: Insights at the Intersection of Biology and Buddhism*, Oxford University Press, New York, 2022, p. 1.

[xv] https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii

[xvi] Pacific Institute Water Conflict Chronology, https://pacinst.org/water-conflict-chronology/ (accessed on 14 April,2024).

[xvii] India Forbes, 'Subsidies burden to get lighter', February 2, 2024.
https://www.forbesindia.com/article/news/budget-2024-subsidies-burden-to-get-lighter/91243/1