WORKING PAPER 25 – 'Hydropolitics' in the Hindu Kush Himalayan Region [1]

The case for a unified, committed, multilateral effort

By Paulo Casaca
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Paulo Casaca is the Founder and Executive Director of the 'South Asia Democratic Forum'; founder of the international co-operation association registered in Brussels ARCHumankind, 'Alliance to Renew Co-operation among Humankind'. Founder and senior partner of the consultancy company on sustainable development registered in Brussels, Lessmeansmore, Land and Energy Sustainable Systems (2010-2020).

Abstract:

The Hindu-Kush-Himalayan region was the main source of rivers providing water for civilizations in the past. Rivers, which continue to flow today through sixteen Asian countries. A resource, that is essential for people's livelihoods and for the preservation of the environment.

For the protection of these rivers, a multilaterally agreed set of water management principles and rules must be followed, and a sustainable equilibrium must be found between different aims and interests. The unilateral imposition of a single nation's determination based on its dominant position on water sources and capacity to press nations in weaker stances is not conductive to the needed environmental preservation and sustainable development.

Keywords: Water Management, Mekong, Brahmaputra, Rivers, Environment, Sustainability, Climate, Glaciers, Southeast Asia, South Asia

[1] I borrow the expression 'hydropolitics' from Middleton (2019)

> *'Guo explained that he originally planned to bring water from the Yellow River to Beijing – but then the Yellow River dried up. He also thought about the Yangtze River, but its western reaches didn't hold enough water either. "But the Brahmaputra has plenty of water; it won't make any difference to India", he said'. (Wei, 2011)*

1. Context

Guo Shoujing (1231-1316) was a prominent scientist and administrator in Mongol-dominated China who, among other things, stood as the 'leading expert in hydraulic engineering' and headed the Waters Work Bureau (O. Connor et. al, 2003). He is quoted here in the context of an intricate controversy on China's future water major works spinoffs of the 'South-North Water Transfer Project (SNWTP)', a concept first formulated in 1950, and which is expected to cost $62 billion by the time of its completion in 2050 (Leung 2020). The SNWTP comprises East and Middle Routes which were achieved in 2013 and 2014, after ten years of works, and a Western Route expected for 2050. It is the largest and most expensive engineering project in the country. (Leung 2020)

The future 'Shuotian Canal', 'an offshoot of work on the western route of the South-North Water Transfer Project' (Xiao, 2018) constitutes the element of discord. 'The name Shuotian comes from the contraction of the origin of the canal near Shuomatan on the Yalung Tsangpo (near the town of Tsetang) and the city of Tianjing at the end.' (Arpi, 2008). We are discussing a canal that criss-crosses the whole country, from Tibet in the vicinity of Arunachal Pradesh in India, passing through Xinjiang (East Turkestan) towards this important Chinese coastal city close to Beijing. A good part of the discussion regards the herculean engineering works such a canal would require – its environmental and international commitment impacts are also debated to some extent (Xiao, 2018). However, what is most

striking in the ongoing discussion, is the underplaying of its potentially catastrophic impacts on South and Southeast Asia.

According to Xiao (2018): 'These schemes would see unreasonable quantities of water diverted from the rivers – 83.3% to 91.5% in the Shuotian Canal proposal. The more recent proposal does not give a specific figure, but says "most" or "all" water from the source rivers will be taken.' The rivers in question are 'the Brahmaputra, Nu [Salween] and Lancang [Mekong]' (Xiao, 2018).

As all the world's ancient empires, China's was once built in tight connection to complex hydraulic works. Perhaps like no other, it continues to do so today. This is highly relevant for China itself, but also for its neighbours in South, Southeast and

Central Asia – which either depend on water sources originating in the Chinese territory or are heavily influenced by Beijing's policies.

2. Framing the Hindu-Kush-Himalaya (HKH) water system debate

Over the past few years, an impressive array of scientific analysis, think tank reports, press articles and other publications, have been issued on the Hindu-Kush-Himalaya (HKH) water system (among others, we register here Wester et al. (2019); Singh et al. (2019); Ahmad (2020); Prakash (2020); Albinia (2020) and Hu et al. (2018 and 2019)). The HKH water system considered in these reports comprises ten major river basins originating in the area: the Amu Darya; the Brahmaputra; the Ganges; the Indus, the Irrawaddy; the Mekong; the Salween; the Tarim; the Yangtze, and the Yellow River.[2]

The rationale for considering the HKH water systems' sustainability in its specific framework rather in the general context of water sustainability in Asia, or in the context of global water sustainability, is manyfold. It has to do with demography – estimations of the population living in these basins vary between 1500 (Prakash, 2020) to close to 1900 million people (2015; Sharma et al. in Wester et al., 2019) – that is, over a third of' the population of Asia. It is also relates to the economic

[2] We can as well consider a unique water basin formed by the Ganges-Brahmaputra-Meghna rivers, as I did on my latest report on the issue.

weight of some parts of these basins (Hu et al. 2018 and 2019), or simply with the sheer volume of water they comprise – representing the largest share of the continent's natural water flow, a fact which gave rise to the expression 'water tower for Asia'.[3] But what led the HKH to notoriety in recent years was its massive glaciers, whose importance led to the coining of the expression 'Third Pole'.[4] This expression implies that these glaciers are as threatened by 'climate change' as those in the two 'real' (widely known) poles.

The precise nature of the threat (less melted ice and snow, variation in rain's annual distribution, evaporation), its calendar and, of course, the consequences involved, are far from clear.[5] The common denominator of all climate change scenarios (emerging from a phenomenon described in many different forms) is the increase in the annual irregularity of waterflows, which provokes draughts alternating with floods. The most obvious answer to these challenges is centred on the construction of dams and dikes as well as the channelisation of rivers. This is the solution supported for instance in one of the articles on the 'Third Pole'. Paradoxically, the vast majority of the contributions shown in the 'Third Pole' are dedicated to highlighting the environmental damages of these very same dams, dikes, and channels – and this either under the heading of 'water management' or the heading of 'climate change'.

'China Water Risk'(CWR), one of the organisations sponsoring the 'Third Pole', published the two aforementioned reports by Mr Hu et al. (2018, 2019). These two reports are by far the most comprehensive regarding the environmental, economic, and geopolitical perspectives stemming from China, the major actor in the 'Hydropolitics' game played around the HKH. This working paper will follow them

[3] The expression 'Water Tower for Asia' is used for instance here (Scott C.A., Zhang F., Mukherji A., Immerzeel W., Mustafa D., Bharati L. (2019) Water in the Hindu Kush Himalaya. In: Wester P., Mishra A., Mukherji A., Shrestha A. (eds) The Hindu Kush Himalaya Assessment. Springer, Cham. https://doi.org/10.1007/978-3-319-92288-1_8). The expression aims to suggest the sheer importance of the volume of water coming from that system to the whole continent.
[4] The 'Third Pole' is seen as the third largest after the North and South Pole, as it is holding incommensurable volumes of ice. It is also the name of an organisation dedicated to the HKH's water management. The organisation is based in Delhi, but 'was launched as an initiative of chinadialogue, in partnership with the Earth Journalism Network'.
[5] The 'Third Pole' acknowledges the severe faults of the predictions of the IPCC, some awkwardly attributed to language typos.

to highlight in a holistic way the full implications that can be drawn from the interpretation of the phenomenon diffusely called 'climate change'. The organisation 'China Water Risk' presents itself as a 'non-profit think tank' (…) 'based in Hong Kong'. The 2018 report is titled 'No Water No Growth – Does Asia have enough water to growth?' and the second is titled 'Yangtze, Water Risks, Hotspots and Growth'. Both reports acknowledge sponsorship by the 'ADM Capital Foundation', and 'core funding' by the 'Rockefeller Brothers Fund' and the 'RS Group' (Hu et al. 2018, p.9, Hu et al. 2019, p.2). Both reports pay special attention to President Xi Jinping statements, using language closer to what would be expected from official Chinese literature than from independent think tanks.

The first of these reports (p. 1) frames the debate in the three initial paragraphs, which centre themselves on the perception that climate change threatens the upper watershed of the HKH system (with major economic consequences). The suggestion present being that a reconceptualization of the existing model of development – 'wedding economic planning with water management' – could constitute an answer to these challenges. The executive summary of these reports highlights the choice of 'four "priority rivers" among the ten river basins under analysis: the Ganges, Indus, Yangtze and Yellow (p.11). Two types of criteria are followed: the first being socio-economic, wherein the number of people and the resulting economic activity in the river basin is taken under consideration; the second relative to water-stress,[6] and the concept of 'exposure' – this last which encompasses 'climate change exposure' as well as other factors, taken into consideration in a rather 'loose' manner.

The sequential report by the team led by Mr Hu (2019) is solely dedicated to the Yangtze. It builds on these priorities but changes their original order:

> 'Our NWNG Report [Hu et al. 2018] identifies 4 priority rivers for urgent action: the Yangtze, Yellow, Ganges and Indus.'

[6] The Lake Erie is taken as a point of comparison regarding the volume of the water-flow of major rivers. This suggests that the report targets US public opinion.

Climate change is seen[7] as the crucial driving force behind all existing challenges in all these approaches[8],however, there seems to be no objective criteria allowing us to see climate change as more urgent (or with higher priority) than water management. The report concludes (2018, p.11) that 'All four "priority rivers" are vulnerable to climate change with glacier and snow melt contributing to over 20% to 80% of runoff in the upper reaches of these rivers.' This is a very ambiguous prediction which does not even get to quantifying the most important consequence in the context of the debate: its impact on water flow variability. Regarding water flow volume itself, projections are even more unclear – this, as the report's sole conclusion states that 'more worryingly, projections show that the entire Ganges and Indus river basins will likely see reduced runoff flows by 2055'.

The relative 'climate change risks' regarding water flows in these ten river basins also remain unclear. Whereas melting glaciers and variations in snowfall appear as the main criteria for systematically prioritising the ten river basins, the underlying rationale seems rather feeble. Indeed, as the report itself acknowledges: 'available studies fail to provide a complete picture'. (p.61). The use of the concept of water-stress for analysing the situation can also be seen as debatable – as does its quantification. All these factors beg the question: how can rivers that completely and permanently dry-up before they even reach their natural estuary be considered as anything less than fully 'water-stressed'? Furthermore, the pollution impact on this water stress is not consistently addressed. The dates wherein this water-stress is evaluated are also not disclosed. Therefore, the report does not provide the reader with information concerning the evolution of the water-stress situation. This is particularly important as the river considered the one with the highest degree of water-stress is the Yellow river – which, as we have seen, was already considered as 'dry' in the thirteenth century.

The 'basin management principle'[9] constitutes the backbone of any possible constructive dialogue on water management. Yet it is downplayed by present

[7] This becomes more apparent if we concentrate on the press reports based on these and other studies than on just reading the reports themselves.
[8] With the qualified exception of the second report of the team led by Mr Hu.
[9] We can see it explained on this OECD publication regarding the European Union's Water

assessments. Some details quoted by the reports confirm that the general water management attitude prevailing in China overlooks this principle when applied to transboundary rivers. For instance, the Yangtze Water Resources Commission (YWRC) created in 1950 'covers the entire YRB as well as areas in the west of the Lancang [Mekong] River' (Hu et al. 2019, p. 22) whereas the main source used to assess the state of public works in the same river is called the 'Yangtze and Southwest Rivers Water Resources Bulletin' (Hu et al. 2018, p. 120)

The criteria regarding the GDP generated in the water-basin are crucial to establish priorities. However, this relation is not acceptable since there is no reason to expect a linear relation between water abundance and GDP. Otherwise, if the report aims at establishing Asian rather than Chinese priorities, the only sensible logic would

be the reverse of that stated: to prioritise areas with low GDP per capita, as these are the ones that need more outside help. Rich river areas have their own means for preserving water.

The only national policy under scrutiny in both reports by Mr. Hu's team is the Chinese. Virtually all references concern it – and are undertaken through quotations of President Xi Jinping. The first, which sets the tone to all others, is a quotation from a time before his presidency:

> 'From 2002 to early 2007, Xi used to be the CPC secretary of Zhejiang province. During that period, Zhejiang saw rapid economic growth but also rising pollution concerns. In various occasions, he compared 'clean water and lush mountains' to 'gold and silver'. In early 2007, before moving on to his next role in Shanghai, he attributed Zhejiang's economic success to "scientific development philosophy" and "optimisation of industry mix". He never saw 'dirty' money from polluting industries as key drivers for the economy.' (Hu et al. 2018, p. 102)

A similar reference is repeated in the second report, although in a shortened way:

Initiative National Policy Dialogues progress report 2016.

'As President Xi said as early as 2005 (when he was the governor of Zhejiang), "clean water and green mountains are mountains made of gold and silver"' (Hu et al. 2019, p. 60)

Hu et al. (2018) report addresses the crucial issue of river construction works at its end (p.106) under the heading 'HYDRO DRIVES GREEN POWER IN THE HKH 8':[10]

> 'China alone has installed 331GW hydropower or 83% of the HKH 8's total capacity. According to its latest Five Year Plan (13FYP), it aims to add another 10GW to reach 340GW by 2020.' Further in the same page we can read: 'According to the Global Reservoir and Dam (GRanD) Database and International Rivers, which capture a quarter of over 50,000 existing dams globally, the HKH Rivers have at least 702 dams. Over half (53%) of these 702 dams are on the Yangtze. In fact, as per China's own statistics[11], there are 240 large-scale and 1,322 midsized reservoirs in 2015 on the Yangtze alone'

This crucial information, based on sources which are now irretrievable from the web, is not developed further by the subsequent report fully dedicated to the Yangtze River (Hu et al. 2019). The huge investments in water dams on the HKH's water system raise many environmental issues, even when these dams are only geared at producing electricity. Referring to one of the most important ongoing projects of this kind in the HKH, the BRI-financed 'five dams forming the 'North Indus River Cascade', Gupta observes that 'the dams will also stop the flow of silt which is the lifeline of agriculture downstream'. This is a concern widely shared elsewhere in the HKH river basins.

This report, however, repeatedly emphasises the ways in which President Xi Jinping favours the environment over development. For instance, in a diagram explaining

[10] The HKH 8 refers to the eight countries located in the Hindu-Kush-Himalaya region. Other than Chinese Tibet, which occupies by far the largest part, the other countries are Afghanistan, Bangladesh, Bhutan, India, Myanmar, Nepal, and Pakistan.
[11] Unfortunately, the source of this crucial information: 'Yangtze Water Resources Commission of the Ministry of Water Resources. Yangtze and Southwest Rivers Water Resources Bulletin 2015. (2016). at http://www.cjw.gov.cn/UploadFiles/zwzc/2016/12/201612291107064317.pdf is not retrievable.

the most important contemporary developments on the Yangtze water management (Hu et al. 2019, p. 6) we can read as the most important event of June 2015: 'President Xi stressed the importance of ecological protection and green development in the YREB [Yangtze River Economic Belt]'.

As most Chinese efforts regarding water management are in our day conducted outside its borders and under the BRI, President Xi Jinping's declarations on 'The Second Belt and Road Forum for International Cooperation' held in Beijing in 2019 are even more significant than those pronounced regarding Chinese rivers: 'We should make our support for the UN 2030 Agenda for Sustainable Development an integral part of the Belt and Road cooperation, align our cooperation with universally accepted rules, standards and best practices, and pursue economic growth, social progress and environmental protection in a balanced way. The BRI should be beneficial to all and deliver common development.'

This very same message stems from reading recent Chinese official press. An online consultation shows repeated messages in relation to water in general, or the Yangtze in particular, that emphasise Xi Jinping's priority to environmental over developmental considerations. Without prejudice to the importance of these statements and regardless of their sincerity, the issue at stake is that China is a country with massive investments on water projects which sidestep any environmental considerations. How can meaningful, objective policy reports ignore this reality – in fact replacing it with the reverse picture linked not to facts but to Mr Xi Jinping's statements? The same can be observed as regards the crucial issue of the use of international watercourses, to which Hu et al. (2018, p. 107) dedicate the very last paragraphs of their report:

> 'On 17 August 2014, the 1997 Convention on the Law of the Non-navigational Uses of International Watercourses (commonly referred to as the UN Watercourses Convention (UNWC)) entered into force. However, no HKH 8 countries has ratified this international convention so far; among the HKH 16, only Vietnam has ratified the UNWC.'[12]

[12] The HKH 16 group, other than the HKH 8, includes the eight countries downstream the HKH river system: Cambodia, Kyrgyzstan, Laos, Tajikistan, Thailand, Turkmenistan, Uzbekistan, and Vietnam

As I stressed before (Casaca 2020B) the issue goes beyond the lack of ratification; China was one of the only three countries in the world that voted against the approval of this convention. The report acknowledges (p.107) that 'China shares in total 40 major transboundary rivers with 16 countries' and 'most of the HKH Rivers are flowing to downstream countries. However, China has very few agreements. The report does not offer us a quotation by President Xi Jinping on the subject of multilateral cooperation, but we can remind ourselves of his recent speech to the United Nations, where multilateralism is referred several times, namely in its final paragraph: 'Let us renew our firm commitment to multilateralism'. It is perhaps high time for President Xi Jinping to follow his own advice as expressed in the same occasion: 'To put into practice the principle of multilateralism, we must act, not just talk'.

3. Review by river basins

The **Amu Darya** originates in the Pamir Mountains; together with the Syr Darya, which springs out of the Tian Shan Mountains (an extension to the North-east of the HKH), pours its waters in what used to be the Aral Sea.

The waters of both rivers were nearly entirely diverted for irrigation purposes, starting in the 1960's (during Soviet times), and mainly to produce cotton. This eventually led to the disappearance of the Aral Sea and its transformation into a Salt desert – with enormous climatic repercussions. The Aral Sea Disaster was understandably seen at its time – before Rio's 1992 Summit – as the symbol of man-made environmental disasters. There was no conceivable controversy regarding what led to the disaster: water over-exploitation for unsustainable agricultural practices. The process of water over-exploitation of the Aral Sea was repeated elsewhere – with the same consequences in other lakes such as the Urmia in Iran, the Poopó in Bolivia and, within the HKH, the lake Lop Nor.

However, in January 2020, a conference held in Berlin with the presence of Central Asian as well as, oddly, Iranian representatives, and through the sponsorship of the European External Action Service concluded that: 'Climate change has already hit

hard in Central Asia. Over the past three decades, average annual temperatures in the region rose by 0.5 degrees Celsius, causing droughts and water scarcity that have disrupted entire ecosystems. The most dramatic example is the Aral Sea, once the world's fourth largest lake, now vanished off the face of the Earth.' (Casaca, 2020b). The process of disappearance of the Sea of Aral was mostly complete thirty years ago (some partial recoveries have been recorded since then): it could have not possibly been caused by what was to happen later.

The executive summary of Mr Hu led team's report (2018, p.12) quantifies the water-stress of the Amu Darya river as 28%. As the GDP of this river basin is comparatively low when compared to the ten river systems, the Amu Darya is not seen as a priority. This report (2018, p. 107) refers to the Aral Sea transboundary agreement between Afghanistan, Tajikistan, Turkmenistan and Uzbekistan regarding 'Restoring the balance of the destroyed ecosystems' and dated 1993. However, no analysis of its implementation is developed.

The **Tarim** River, flowing through Westernmost China, is also not reaching the lake Lop Nor as it used to, fundamentally because of the same over-diversion of its waters for irrigation purposes – in a less known but possibly no less dramatic development. Liu et al.'s (2014) history of the process distinguishes the past 'Socio-hydrologic' period when 'climate change' was the driving force behind the river's behaviour from the modern one wherein overexploitation became the main impacting factor.

The executive summary of Mr Hu's report (2018, p.12) quantifies the water-stress of the Tarim River as 37%. As most of the course of the river crosses Xinjiang (East Turkestan), a region of low GDP, this river basin is not classified a priority either. The report acknowledges (2018, p. 107) that no transboundary agreement on the Tarim River exists between China and Kyrgyzstan.

The **Yellow** River has also been conditioned by overexploitation. A report published by Nature considers that: 'The Yellow River has undergone a dramatic shift during the last six decades. Its streamflow gradually dwindled away and even dried-up severely in the late 20th century, but in recent years it has recovered and

remains stable.' As we have seen, the Yellow River was already considered to have 'dried-up' in the thirteenth century, and for contemporary times, Arpi (2008) considers that 'today, the Yellow River is dry for more than 250 days in a year'. The executive summary of Mr Hu's report (2018, p.12) quantifies the water-stress of the Yellow river as 63%, the highest of all. As the GDP of its river basin is high, it does qualify as a 'priority river'.

The **Yangtze** is the longest river and the one with the highest water flow in Asia (the second if we consider the integrated basin of the Ganga-Brahmaputra-Meghna). The report by Hu et al. (2018) considered the Yangtze as scoring low in water-stress – 4%. The basin encompasses the highest GDP within the ten basins, it is on average regarding climate change exposure, and high regarding general 'exposure'. There lacks in the report a clear explanation regarding how this general exposure is determined.

The second report by Hu et al. (2019) – fully dedicated to the Yangtze, as we already noted – sees the problem of water management as the main challenge – and sees climate change as exacerbating the problem and not the reverse[13]. It makes a sensible description of the urban, industrial, and agricultural challenges involved and proposes a set of reasonable environmental policies. These policies are, as a rule, attributed to the wisdom of President Xi Jinping.

The different emphasis on climate change in the two reports by Mr. Hu's team are most striking. Whereas the first report is fully focused on climate change, the second focuses almost exclusively on water management. Still, regarding water management, the gargantuan river works (on-going and planned) we referred to in our introduction are barely mentioned in the first report (Hu et al. 2018 p. 106) and only mentioned in the second so as to underline that President Xi Jinping considers them secondary to the preservation of the environment. Qu et al. (2018) equates the relative importance of the impacts by climate change versus (direct) anthropogenic factors in the Yangtze River. The approach contrasts with the prevailing climate monomania. Its reading also consolidates the impression that the Chinese water

[13] I addressed the issue in Casaca 2020A

policy focus on 'climate change' is fundamentally an export product – to be applied to HKH rivers flowing to third countries but not to internal policies (where a sensible, environmentally conscious set of water management principles and policies is praised, even if not translated into action).

The **Indus** river basin scores high in both criteria set by Mr Hu's team report (2018, p.12), as it is attributed a 62% water-stress score and a high GDP. It also scores highest in climate change vulnerability. According to the report (2018, p.66): 'The Upper Indus is particularly vulnerable, potentially putting the 380 million people who live in the Indus River Basin across three countries at risk. Moreover, 92% of Pakistan's economy is generated in this basin alone.' The bilateral agreement of 1960 between India and Pakistan on water sharing of the river's waters is acknowledged (2018, p.107); however, the efficiency of the agreement is not assessed. Other than the uncertainty we referred to regarding future climate change impacts, there is no assessment of the vast water work plans undertaken in Pakistan under the BRI (see for instance, Wolf, 2019: 228-235) or the impact on water of other investments of initiatives such as Coal-based power plants (Chartier, 2020). Salinization, the most pressing water threat to human populations in the Indus basin (Casaca, 2018) is also not mentioned.

The **Ganges** river basin is the most important of the designated priorities[14]. The river basin scores high in both criteria set by Mr Hu led team report (2018, p.12), as it is attributed a 62% water-stress score and high GDP in the river basin. It also scores high as regards climate change vulnerability. The report refers to challenges that are especially important in the Ganges river basin such as Coal-based power plants (p. 75) or water use in agriculture (p.100). It considers the problems faced by Bangladesh, as the country constitutes the ultimate downstream area of the Ganges-Meghna-Brahmaputra basin. Bangladesh's agreement with India (from 1996) covering the Ganges is listed in the report (2018, p. 107). Water sharing agreements between India and Bangladesh have constituted an area of contention. A case in point concerns the river Teesta (see a recent report) – the two countries failed to

[14] In the original report. It is however declassified to third priority in the second report, as we have seen.

reach an agreement, and China offered to finance a water project in Bangladesh as an alternative to surmount this lack of agreement.

It is of course of the utmost importance for India and Bangladesh to reach an agreement. However, in the perspective of the BRI water projects in both Pakistan and in Southeast Asia, and taking into account the way China has been using its position of control over most water sources, we can suspect that Chinese motivations are more geopolitically-led than led by a concern with the water situation in Bangladesh. No comprehensive, fully functional agreement is possible that side-lines the country wherein the source of most of the water originates – and this cannot be replaced by any amount of loans or investments. The rejuvenation of the Ganga has lied at the heart of the Europe-India partnership regarding water (Casaca, 2020A). Whereas it is a commendable collaboration, it lacks the ambition of dealing comprehensively with the full set of issues at stake.

The **Brahmaputra** river basin and related human and environmental challenges did not get much attention by Mr Hu's team. It scores low in water-stress, in GDP, and on the general criteria of 'exposure'. The report gives the example of works being undertaken on the river basin, 'For instance, the Zangmu Hydropower Plant, the first project on the Upper Brahmaputra (YarluZangbu), was put into operation in late 2015' (2018, p.106). However, it does not refer to the transfer of water between river basins we mentioned in the introduction.

An opinion article (Palmo, 2020) recalls that 'Both the 12th and 13th Five-Year Plans adopted by the Chinese State Council have called for a large-scale expansion of hydropower projects in the southwest, including all three provinces of Tibet. The Yarlung Tsangpo (Brahmaputra River) is one of the main international rivers identified for hydropower expansion in Tibet.' It stresses the very negative impact of these dams on both the environment and the livelihoods of Indian populations downstream, an opinion however taken as exaggerated by others (see Modak 2020).

An August press article (Bhalla, 2020) speaks of at least eight new dams being projected – in addition to the three recently built – pointing to the possibility that some of them could be used to divert water to other river basins (the Western route).

The lack of transparency by Chinese authorities as regards their intentions for the management of important river basins such as the Brahmaputra and the Mekong, either in the context of the SNWTP or the Shuotian Canal, naturally leads to all sorts of speculations. It serves as an additional source of destabilisation and pressure on downstream states.

The **Irrawaddy** is also given little attention in the report. As most of its basin lies in Myanmar, a low GDP country, it scores low on this criterion. It also scores low on 'water-stress' and 'exposure'. More to the point, the report (2018, p. 66) acknowledges the lack of information on the possible impact of 'climate change' on the glaciers feeding the Irrawaddy (as it also does for the Amu Darya). One can therefore assume that 'climate change' is not taken into consideration. The Irrawaddy and Salween are sometimes considered together with the Mekong in the 'Greater Mekong' area, as the three river basins have some common characteristics and face similar challenges. The river basins are however clearly distinct, and both the Mekong and Salween basins involve a considerable larger area in China than does the Irrawaddy.

The Hu et al. report (2018, p.106) briefly mentions the conflicts provoked by the construction of dams in several river basins, including the Irrawaddy and the Salween:

> 'Development of dams on transboundary rivers can lead to controversies and even conflicts. According to the Environmental Justice Atlas (ejatlas.org), there are already cases such as the Myitsone dam on the Irrawaddy, the Hatgyi Dam on the Salween' (…).

This is an understatement, as these conflicts occupy centre stage in Myanmar – both in the internal political scene and the geopolitical point of view.[15] According to the website of the 'Consultative Group on International Agricultural Research Centers' (CGIARC) on the Greater Mekong, 'the Irrawaddy has a large hydropower potential, and Myanmar's soaring electricity demand has focused on developing this. Currently, there are a total of 41 hydropower dams in the basin, mostly

[15] See for instance this environmental assessment, this general assessment and this press report.

concentrated in China (35)'. The driving force behind the new water basins developments under way in Myanmar is China, now under the BRI brand. 'China Quietly Pushing Myanmar to Back Its Development Plan for Irrawaddy River' is the title in 'Irrawaddy', a Myanmar news web written in English (Lwin, 2019).

The **Salween** scores even lower than the Irrawaddy in GDP criteria, as its basin is in scarcely populated areas of China, Myanmar, and Thailand. Its dependence on glaciers (Hu et al. 2018, p.66) seems to be above average; however, the overall exposure assessment made by the report is low. According to the CGIARC website quoted above:

> '…in Myanmar, massive planned dams are mired in controversy. Nevertheless, there are dams in the basin. In China, there are 23 hydropower dams of 15 MW installed capacity and above, and 10 irrigation dams with a reservoir surface area of 0.5 KM2 and above. In Myanmar, there are 4 hydropower dams and 6 irrigation dams. Thailand has yet to construct any dams in its part of the basin.'[16]

Middleton and Lamb's (2019) book title, 'Knowing the Salween River: Resource Politics of a Contested Transboundary River', is quite telling of political issues at stake in the Salween.

The **Mekong** river basin is seen as suffering from no water stress and with relatively low 'exposure', scoring also low in GDP. It is therefore not considered a priority (Hu et al. p. 12). However, regarding transboundary cooperation, Hu et al. (2018, p. 106) refer to 'A New Era of Regional Cooperation along the Mekong' (developed in p. 55). This contrasts with the general low level of cooperation elsewhere in the region: 'The good news is that we have seen positive progress on the Mekong,

[16] Ironically, one can read in the preceding paragraph on the very same website: 'The mainstream of the Salween is one of the last free flowing rivers in the world. For the time being, China has cancelled its hydropower development ambitions for that part of the river in China. Much of its basin in Thailand lies in a protected area.'

where China has been taking a more multilateral approach and is willing to lead dialogues and cooperation'.

The least we can say is that this view of the 'Lancang Mekong River Cooperation' (LMC) as the ideal model to be followed elsewhere in the HKH is the opposite to that held by most observers. A National Geographic report (Loygren, 2019) was thus titled: 'Mekong River at its lowest in 100 years, threatening food supply; A combination of drought and controversial upstream water politics is setting up Southeast Asia for potential disaster'. This report is very instructive, as it highlights several drawbacks of the present situation which are largely miss-considered in the Chinese prevailing vision and yet must be dealt with. Other than the general biodiversity-related disaster, National Geographic – among others – concentrates on the consequences of these river works on the flood pulse and sediment (and thus on agriculture and fisheries) as well as on the erosion of the delta.

China shunned the intergovernmental Mekong River Commission – the proper regional dialogue mechanism to address water management issues – and replaced it with the above mentioned 'Lancang Mekong River Cooperation' (LMC), which constitutes a mechanism of Chinese control rather than a regional management system. (Loygren, 2019). A country such as Laos, which is seen as China's closest client state in the region, manages water in a particularly disastrous way with 'plans to turn itself into "the battery of Southeast Asia"' by 'building dozens of hydroelectric dams on the Mekong and its tributaries'. "There is a system of total anarchy for hydropolitics and hydropower in the region," says Eyler, the author of the book Last Days of the Mighty Mekong' (Loygren, 2019).

The Diplomat (Citowicki, 2020) under the title 'China's Control of the Mekong' tells us that 'Partnering with the Chinese government and entrepreneurs through the Belt and Road Initiative, the opaque Laotian Government has approved over 140 dams along the Mekong and its tributaries. Heavily indebted, Laos stands at a high risk of collapsing under the weight of its debt to China, leaving it dangerously susceptible influence from Beijing.'

The EU approach

Within the HKH region, the Mekong basin is where the European Union has been more engaged, as one can see in its recent report 'The Mekong River Geopolitics over development, hydropower and the environment'. (EU 2020) The report is rather descriptive and touches mostly upon issues addressed elsewhere. It does, however, point to issues not sufficiently highlighted elsewhere, such as the consequences of over-extraction of underground water and the diminution of sediments due to river works on the entire Mekong delta – which is, for these reasons, predicted to sink completely by 2100.[17] Like the present working paper, it addresses the 'South-North Water Transfer Project' and the geopolitical interests involved, refraining however from any open criticism of any actor involved – let alone suggesting a comprehensive set of alternative policies.

More importantly still, this assessment is not integrated within an EU coherent policy – the EU thus holds here an entirely different approach to that recently held regarding the Aral Sea, as we have seen above in connection with the Amu Darya. The result is that the EU is losing all its leverage on the region. It lacks an alternative coherent vision to the prevailing Chinese strategy to be proposed to potential regional partners. Worse than that, the European Union accepts to misuse the 'climate change' issue as universal scapegoating, thus destroying all its comprehensive message on environmentally sustainable water management.

Warnings on these dangers have been produced both through research and on the pedagogic level[18]. In 2015, I considered that the spirit of the 'Rio Earth Summit' had progressively been eroded: 'Whereas Rio marked an international crescendo towards a comprehensive sustainable development movement, the UNFCCC process has side-lined all remaining crucial environmental issues from public opinion main debates. Water, oceans, forests, poverty, smog, biodiversity, to name

[17] Notwithstanding, mixing these remarks with inconsistent references to 'climate change' which are simply impossible to understand.
[18] See for instance the Council of Europe website on environment, where one can find the following box: Climate change should not mutate from an inconvenient truth into a convenient scapegoat for other human pressures.
Keith Brander and others (14 K. Brander, et al, 'The value of attribution', Nature Climate Change, Vol. 1, May 2011, p 70.).

just the main topics, became either second-order concerns or even worse, they are viewed as reflections of a hypertrophic climate change vision.'

Among the anthropomorphic environmental impacts, climate is the most convoluted and difficult to measure. It results from complex impacts through time on water, soil, and atmosphere; it interacts with natural phenomena in complex ways; it may have significant feedbacks, as changes of climate may provoke new changes on climate. As such, if we take it out of context, 'climate change' easily becomes the universal scapegoat, used namely to divert attentions from all human actions that directly impact the environment (and indirectly, the climate as well).

Instead of analysing overfishing or the use of non-selective gear, one can simply get drowned in a 'global warming mantra' of possible reasons for the collapse of a marine species. Discussions of potential sea-level rises are massively used to hide the very real soil subsidence due to over-pumping of water from inland aquifers, lack of sediments (due to river dams), as well as sand extraction from coastal areas. The tremendous health hazards provoked by air-emissions are hidden through their global warming impact. Soil salinization and other impacts of non-sustainable water management practices are misrepresented as resulting from 'global warming'.

4. Concluding remarks

The European Union must highlight its original, integrated policy on water management which recognised the crucial importance of environmental preservation. This should be undertaken both internally and externally. This policy should include considerations about climate change in an objective and coherent fashion. The very same principles followed by Europe in its water management policies of the past are now just as essential and must be followed in Asia and elsewhere. Among them, the principle of management by river basin and a full disclosure of all the actions impacting water management in Transboundary Rivers constitute preconditions for meaningful multilateral action.

Europe must promote out of its borders the same principles and rules it requires within its territory – and should require that all its international partners do the same. Through the BRI, China is promoting dozens of coal-based power plants with

disastrous water quality consequences. In these actions it contradicts its own announced commitment to decarbonisation. China is also fuelling massive investments in water schemes detrimental to the environment outside its borders – in total contrast to what it now professes within its own borders. This must stop if we want to prevent catastrophic environmental impacts. The set of water management principles applied in the HKH region are also valid outside it – for there is no reason why other transboundary river basins should not be submitted to the same rules.

The ratification of the UN Watercourses Convention (UNWC) is a must and the participation in the UNECE Transboundary Waters Convention (UNECE TWC) would constitute a bonus for all countries considered. The creation in other river basin authorities such as the existing Mekong River Commission (MRC) would constitute a fundamental step – provided that it is not boycotted by the country with the largest leverage on the basin, as it is the case with the MRC shunned by China.

This working paper should be considered as a 'call to action' by European authorities, highlighting the tremendous environmental and geopolitical importance to the international community of what is at stake on the Asian 'hydropolitics'.

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19 Avenue des Arts 2nd floor, 1210 Brussels, Belgium
E 0833.606.320 RPM Bruxelles
Email: info@sadf.eu Web: www.sadf.eu