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Are river deltas being
'left behind'? a new agenda for
SDG localisation in Asian
mega-deltas



Summary

- River deltas are *vital* to achieving the SDGs in South and South-East Asia: they contribute to a range of economic, social and environmental SDG targets
- Deltas are also *vulnerable*, and SDG targets track a number of these threats and challenges
- Deltas are closely interlinked systems, making the *indivisibility* of the SDGs important, and are landscapes where groups are '*left behind*' in particular ways.

Together, these elements define a ***delta-SDG agenda***.

- More could be done to address this agenda in national SDG monitoring and reporting frameworks - deltas are sometimes absent from Voluntary National Reviews; relevant indicators are absent from national SDG indicator sets.
- Stakeholders can work together for change around themes of better governance, data availability, dialogue and mutual learning, with the regional level an important context.



Authors

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Are river deltas being ‘left behind’? a new agenda for SDG localisation in Asian mega-deltas

Introduction

The Asian mega-deltas, among the world’s most biodiverse and fertile, are home to 400 million people and a vital source for the food security and livelihoods of delta dwellers (Schneider & Asch, 2020). Flourishing river deltas are *vital* to the achievement of the Sustainable Development Goals (SDGs), but they are also *vulnerable*. Deltas are threatened by a plurality of intertwined challenges from climate change impacts (e.g. flooding, sea level rise, coastal erosion, salinisation, drought, water scarcity, weather extremes) coupled with intensified development within deltas and impacts from upstream (Bianchi, 2016).

The 2030 Agenda, with the 17 SDGs at its heart, has been actively embraced by the governments of delta countries in South and South-East Asia. Yet, two years into the “decade of delivery” for the SDGs, the challenge posed in this briefing paper is stark: deltas are not getting the attention they need in policymaking and monitoring around the SDGs, from sub-national to regional scales.

This briefing paper aims to identify a *delta-SDG agenda* that identifies the value and vulnerabilities of deltas in SDG terms, and to make the case for better efforts to address this agenda. The paper has been prepared by *The Living Deltas Research Hub*¹ - an equitable, international, academic-led partnership aiming at secure sustainable delta futures for both delta dwellers and nature. It concentrates on examples from the Asian mega-deltas where we work, including the Red River and the Mekong River (Vietnam) and Ganges-Brahmaputra-Meghna (Bangladesh, India) but addresses Asian mega-deltas more broadly.

Deltas as socio-ecological systems

Coastal deltas, formed as sediment transported downstream by rivers is deposited and fanned out at the site of the river mouth, are unique and complex **socio-ecological systems** containing various environmental sub-regions (e.g. floodplains, coastal zones, urban areas, vegetated ecosystems, aquatic ecosystems) and groups of human organisations (social groups, communities, governments) tightly interconnected by co-dependent processes. Because people and environment are embedded within dynamic relationships with one another, they cannot be treated as separate systems (Brondizio et al, 2016).

The paper has four sections. The *first* demonstrates the multi-dimensional importance of deltas for the achievement of the SDGs across goals and targets, and through the interlinkages between them. *Second*, the paper briefly makes the case for just how relevant the SDG agenda - both the detail of its targets, but also its fundamental principles - is to deltas and their specific challenges. Taken together, these elements help to define a delta SDG agenda. But, as shown in the *third* section, this agenda has not received concentrated attention in national SDG monitoring and review structures in delta countries in South and SE Asia. Our *fourth* section concludes and offers recommendations on some initial steps for all stakeholders towards addressing this gap.

¹ <https://livingdeltas.org>

(1) The contributions of deltas to the SDGs

In a flourishing delta, a resilient biosphere provides a safe and healthy space for humanity, answers human needs for food, water and shelter, generates sustainable livelihoods and economies, and supports equitable societies. Therefore, healthy deltas are vital to achieving the SDGs, particularly in contexts where large populations rely on delta ecosystems for survival and prosperity. Figure 1, below, captures some of these dimensions:



Figure 1: how a thriving delta contributes to the SDGs; adapted from Nakicenovic et al, 2016, p45

In particular, deltas contribute to food security and livelihoods (SDGs 1 and 2). Rice feeds half the world's population, and production must increase by 25% by 2030 to keep pace with increasing population/ demand, approximately 90% of global production takes place in Asia, with deltas significant in this production (Schneider & Asch, 2020). The fisheries sector is vital for populations that live in the deltas, as a source of animal protein (e.g. in Bangladesh around 50–60% of animal protein is supplied by fish while in India this is about 12%) through subsistence fishing. But these and other livelihoods and incomes related to tourism, agriculture and fisheries (targets 1.1,2.1,11.4) are supported by diverse and rare biodiversity, which also strengthens resolve for further conservation and restoration actions (target 15.1) which in turn further promote ecosystem services relating to various other SDGs (2,3,5,6,13,14,15).

Coastal deltas are of critical importance for both climate change mitigation and disaster risk reduction (SDG 13, but also 1 and 11). It is estimated that coastal wetlands accumulate approximately 20 - 30% of global carbon stocks (Roulet, 2000), while helping to mitigate the severity of both fast-onset coastal hazards such as storm and floods, and slow-onset events like sea level rise and soil salinisation, all of which threaten progress across the SDGs (Spalding et al, 2014).

(2) The contribution of SDGs to flourishing deltas

Delta vulnerabilities

Though vital to the SDGs, deltas are also uniquely vulnerable to climate change and human impacts. The drivers of change in the delta contexts are induced by factors from outside delta systems (natural hazards, upstream river governance, transnational political economy) but also factors from within - e.g. population growth, infrastructure development, and land use change. The seventeen SDGs cover an ambitious, broad range of concrete and cross-cutting thematic issues around sustainability and development. Figure 2, below, shows how threats and challenges for deltas are mapped across the SDGs.

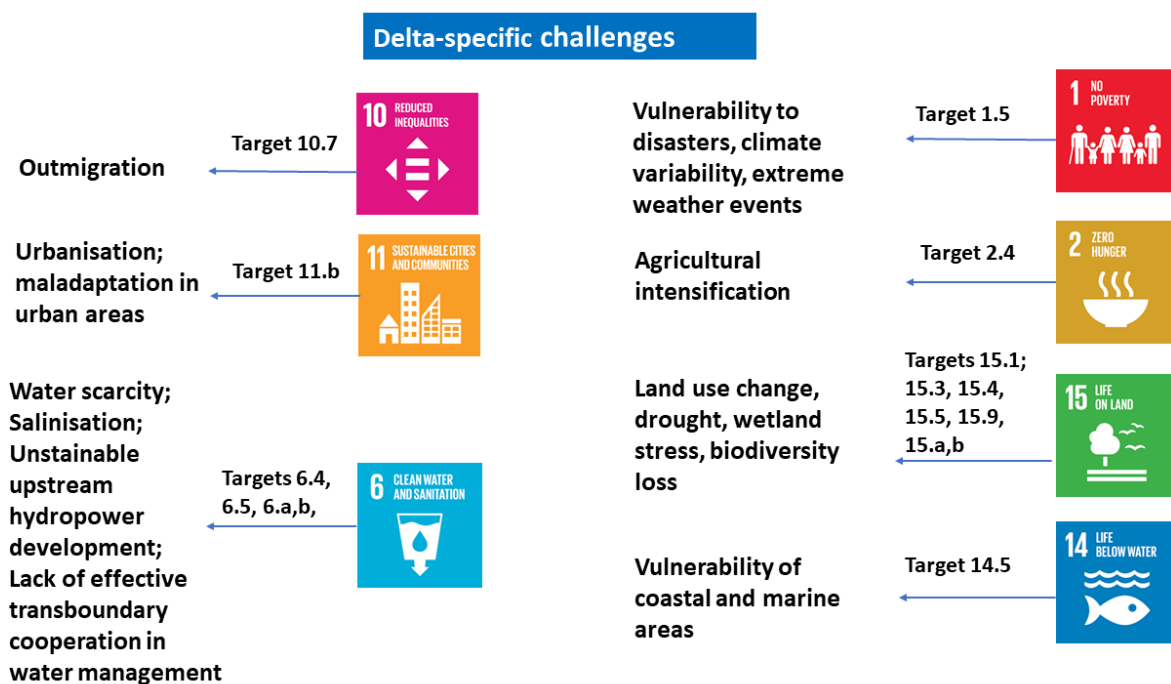


Figure 2. SDG targets that reflect/identify delta-specific issues and challenges, drawing on Szabo et al (2015), Scown et al (2020), and Hub research

As Figure 2 shows, a wide range of challenges for deltas are well covered in the SDGs, but this can be underscored with some examples. In the Mekong delta, out-migration is more than double the national average, and even higher in its most climate-vulnerable areas (Chapman and Van, 2018). Exposure to threats, and loss and damage of rural livelihoods are considered among underlying drivers of this massive migration to urban areas (Scown et al, 2020). Achieving SDG target 10.7 could provide a potential pathway to addressing this issue. The negative impacts of this out-migration on urban areas within or adjacent to the delta (Scown et al, 2020) and growing urbanisation in delta regions, can be mitigated by efforts to implement SDG Target 11.b.

Major infrastructure demands including enhanced urban flood management and protection (Szabo et al, 2016) have meant deltas becoming highly engineered landscapes (Nicholls et al, 2020). On the Mekong delta, thousands of kilometres of dykes have been erected to protect people and crops from flooding (targets 1.5; 13.1), but at the same time have fundamentally altered the ecosystem - targets 15.1; 14.2 (Chapman and Van, 2018). The alteration of the original deltascape has left detrimental impacts on both nature and humans, where local farmers, especially the poorest and landless populations are struggling to find fish for daily subsistence, and the nutrients carried by the floods are prevented from reaching rice fields due to the dykes (Chapman and Van, 2018).

The SDGs offer potential to addressing a variety of delta-specific challenges. But a cautionary note should also be sounded. Cultural heritage is not well addressed in the SDGs. Deltas have a unique and critical role in the historical and cultural life of delta dwellers. Asian mega-deltas are described as the early cradles of wet rice civilisation (Seto, 2005). The Red River delta for example is home to a particularly rich religious and cultural heritage as a cradle of both Vietnamese Buddhism and wet rice civilisation (Fanchette et al, 2016). The neglect of the importance of cultural heritage and its vulnerability to the evolving change of delta landscapes carries a risk of loss of cultural identities - detrimental in its own right, and with wider negative effects on sustainable delta futures.

Delta interlinkages

Deltas are especially closely interlinked systems: their contributions to the SDGs, and the risks that threaten to undermine these contributions, are intertwined. The emphasis on indivisibility and integration across social, economic and environmental parts of the SDG agenda is central to both understanding deltas and securing their futures. Figure 3 illustrates an example of how healthy socio-ecological delta systems contribute to multiple SDGs in interconnected ways. Coastal ecosystems support unique terrestrial and marine biodiversity while providing benefits for climate change mitigation and adaptation (1.). This enables fertile environments for agriculture, aquaculture and fisheries supporting livelihoods, food and water security, and tourism (2.). Thriving delta communities foster mutually beneficial rural-urban relationships minimising out-migration to cities and reducing inequalities from livelihood loss (3.)



Figure 3: Illustration of interlinked SDG contributions

In such unique and populous socio-environmental systems, every sector is dependent on the environment and its healthy function. In the GBM delta, spanning the border region of India and Bangladesh, an area known as the Sundarbans is home to over 4 million people and one of the world's largest and most biodiverse mangrove forests. This ecosystem provides critical coastal protection in an area prone to tropical storms and threatened by sea level rise due to its low elevation, making it important for SDG 13 not only for its role in disaster risk reduction, but also for climate change mitigation via carbon sequestration. Protecting this area is critical for biodiversity of

both land and sea in the region (SDGs 14 & 15), but also for food production (SDG 2) and livelihoods (SDG1), which rely on the coastal ecosystems to buffer the increasing threats of extreme weather and climate change impacts. Without this protection other sectors come under pressure as the cascading effects of continual loss of livelihoods can reverse development gains in education, gender, peace and security, sustainable cities and water security (SDGs 4,5,16,11 and 6).

Alongside synergies, the SDG agenda draws attention to the ways in which policymaking on one issue can endanger progress on others. A key trade-off in Asian mega-deltas is between economic and industrial progress and preservation of ecosystems and biodiversity. Development drives land-use change and resource use that increases risk to the very ground on which people stand and the water sources from which people drink.

Leaving no one behind

The commitment in the SDGs to 'leave no one behind' takes on special relevance in deltas. Deltas, to some extent, reflect national and global patterns of disadvantage. The Ganges-Brahmaputra-Meghna (GBM) basin, for example, contains the largest number of the world's poor in any one region (Biswas & Uitto, 2001). There are specific vulnerabilities faced by small-scale farmers who make up over 100 million people and are one of the most affected groups by these complex stressors of delta ecosystems. Likewise, in the Mekong and Red River deltas, poor people living in the coastal zone whose livelihoods are dependent on the exploitation of natural resources are especially vulnerable to hazards such as typhoons, water inundation and flood, coastal erosion and pollution that have been intensified by the impact of climate change.

However, deltas are also sites where aspects of marginalisation *intersect and reinforce* one another. The Hub fieldwork in the Indian Sundarbans has found that already vulnerable and marginalised populations, such as ethnic minorities and the very poor, often reside along the embankments at the water's edge, exposing them to environmental hazards. When their houses and land are lost, they face greater challenges in accessing resources to restore their lives and livelihoods. In Vietnam's deltas, land acquisition that makes way for urbanisation, industrial zones or intensive farming, magnifies aspects of marginalisation. Family separation becomes common with either husband or wife (or both) working far from home, leaving children and older persons behind. Older farmers or those with poor health, who lost their land to industrialisation but cannot work in industrial zones or other non-agricultural work are also especially likely to become vulnerable and marginalised.

Deltas span multiple local political units, and levels of vulnerability also vary across political units in the same delta. For example, relatively wealthy provinces such as Vinh Phuc in the Red River Delta (RRD) or Long An and Can Tho in the Mekong River Delta (MRD), can put in place better social programs and provide more subsidies for poor people. In other provinces such as Soc Trang in the MRD or Ha Nam in the RRD, the poor receive lower support.

Data disaggregation based on different dimensions (sex, age, disability, ethnicity, religion, etc.) is instrumental in addressing marginalisation and discrimination. Data disaggregation is vital to achieving "leaving no one behind". In the context of deltas, this involves addressing marginalised populations, but also geographical differences – recognising deltas as distinct areas for which particular indicators are needed, but also reflecting differences *within* deltas.

'Leave no one behind', whilst partly a technical agenda of data disaggregation, is also a way to bring issues of justice and inequality into discussions of sustainability. Where deltas and those who live in them have been neglected, 'leave no one behind' generates an imperative not just for policy design, monitoring and review, but also for participation in governance - for mechanisms to be established through which these voices can be heard. The SDGs should be realised through 'whole of society' engagement, and this is true in deltas too, but governments and stakeholders agree that COVID-19 has made efforts to include left behind groups more difficult (Clough and Long, 2021).

(3) Are deltas missing from SDG monitoring and reporting?

This paper so far has outlined an approach to generating an SDG agenda for deltas - by addressing the fundamental contributions of the SDGs, the SDG targets that specifically highlight vulnerabilities, and by paying special attention to the integration of delta systems and the populations who are left behind within them.

However, though deltas are vital to achievement of the SDGs, and the SDGs represent an opportunity to identify and address delta vulnerabilities, the coverage of deltas in SDG monitoring and review processes in countries that are home to Asia's mega-deltas is undeniably limited.

Gaps in national monitoring

There are some obvious *indicators of absence*. The word "delta" is not present in the most recent Voluntary National Review (VNR) of India, nor in its 2021, 190-page report on its national index and dashboard. China, similarly, does not mention the word "delta" in its most recent VNR despite being home to the Huanghe - Huaihe, Changjiang and Zhujiang mega-deltas, and neither does Thailand, home to the Chao Praya River delta.

In other cases, there is the *absence of indicators* - gaps in national indicator frameworks that mean deltas and their challenges escape monitoring. Despite having a Bangladesh Delta Plan and referring to this in its VNR precisely because of the importance of deltas to Bangladesh, Bangladesh's 'national priority' SDG indicator set does not have an indicator directly addressing freshwater ecosystems (under goal 6 or 15, say). Though deltas are discussed in Vietnam's SDG reporting, Vietnam's national SDG framework and indicator set restricts its coverage of ecosystems in goal 15 to forests alone.

It is clear that the contributions deltas make to development outcomes are important to countries. India, Bangladesh and Vietnam, as our focus of work in the Hub, all track these *outcomes* by measuring aspects of food security, livelihoods and poverty. But this paper has identified a deeper agenda - (i) SDG targets that reflect aspects of the vulnerabilities of deltas, (ii) SDG targets and indicators that track how ecosystems support these development outcomes, (iii) targets and indicators that identify the interlinkages between people and planet in this context, (iv) indicators and disaggregation that make visible the ways in which some delta-dwellers are being 'left behind'. It is crucial that these elements are addressed more systematically.

Wider challenges

Beyond these headlines, and beyond this brief paper, there is much more to be said. Even where deltas are absent, all these countries mention rivers and freshwater in their VNRs, and deltas are treated in some VNRs as geographical areas for reporting purposes. Deltas, then, are not wholly absent - the question is whether they are considered in a way that does justice to them as systems with unique challenges.

The selection of national indicators can, of course, reflect limitations in data availability. There are wider difficulties around data availability for environmental indicators, and this has been identified as a challenge for the SDGs in the Asia/Pacific region more broadly (UNESCAP, 2021, p14). Issues of gathering and disaggregating data at *delta* level is an additional challenge. In Vietnam's case, for example, a national target and indicator is to put a water monitoring system in place that will allow for greater availability of disaggregated data (Vietnam General Statistics Office, 2019).

Climate change is a priority for all these countries, and partly in recognition of climate change, many countries now have plans for particular deltas - for example, the Mekong Delta Plan and the Bangladesh Delta Plan 2100.² However, it is not clear how these delta plans are integrated with national SDG reporting frameworks or national and regional SDG implementation bodies. This reflects a broader danger of fragmented delta governance. Deltas do not map neatly onto districts, provinces, or other levels of sub-national government. This makes it hard to ensure collective management of deltas, and difficult to address delta-wide sustainability issues.

The SDG localisation agenda - the need for local areas to respond to the SDGs - takes different forms in different delta countries. It can be understood as relatively “top down” or “bottom up”. But in each case, sub-national political units - cities, districts, provinces, states - are the focus for localisation. Deltas, even though they need a specific SDG agenda, are not recognised as a *level* of localisation. Deltas are also internally diverse, containing different localities with different challenges, and so need not just a *localised* agenda, but also to an extent a *sub-local* agenda.

The global SDG framework is deliberately broad, and calls for ownership and adaptation to a range of national and local contexts. Regional, national, and local governance should respond to this call by ‘owning’ an SDG agenda at delta level, and the final section of the paper makes recommendations for first steps in this direction.



² Bangladesh Delta Plan 2100 - [Delta Plan 2100 \(bdp2100kp.gov.bd\)](https://bdp2100kp.gov.bd); Mekong Delta Plan <https://thuvienphapluat.vn/van-ban/Tai-nguyen-Moi-truong/Nghi-quyet-120-NQ-CP-2017-phat-trien-dong-bang-song-Cuu-Long-thich-ung-voi-bien-doi-khi-hau-367711.aspx>

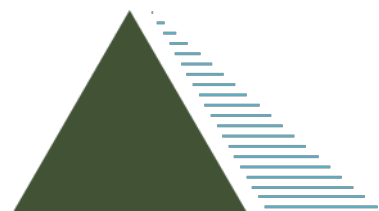
(4) Conclusion and Recommendations: A new agenda for delta localisation of the SDGs?

This paper has shown that deltas are vital for the SDGs, and that the SDGs speak to delta challenges: together, these aspects can be brought together to identify a **delta-SDG agenda**.

This agenda - and the gaps in how it is currently addressed - requires cooperative multi-stakeholder action, with roles for governments, private sector, civil society, academics, and development partners/donors around three core themes:

- **Governance** - in the short term, greater integration between existing planning and monitoring for deltas and SDG implementation could be a “quick win”. Longer term, a more transformative change in how deltas are governed, and a more participatory approach to SDG implementation, are needed.
- **Data and monitoring** - a multistakeholder effort is needed to fill data gaps from national to local levels, concentrating on indicators of delta health and vulnerability, on critical interlinkages, and on the nature of vulnerability and marginalisation within delta communities.
- **Dialogue and mutual learning** - stakeholders, including governments but also with the inclusion of delta-dwellers themselves, need to develop and advance a shared understanding of the unique nature of deltas as socio-ecological systems. Considering both social and ecological components and how these are manifested in the SDGs, stakeholders need to define and develop this delta-SDG localisation agenda together, working through participatory processes.

As with the SDGs generally, the **regional level** is a valuable space to address this shared regional challenge - through peer learning, sharing of best practices, and development of shared ambitions. The regional level can also connect national processes to the work of the High Level Political Forum, including around thematic review of the key SDG targets and goals for this more specific agenda. States and stakeholders can identify appropriate regional spaces for engagement, including around the Asia-Pacific Forum for Sustainable Development, to secure both better delta futures and deltas' contributions to the SDGs.



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