

DeLTAS toolkit - FAQs

Who is the DeLTAS toolkit for?

This version of the DeLTAS toolkit is aimed specifically at delta managers and decision-makers, environmental monitoring agency staff, conservation officers, academics, and delta researchers. It is **not** aimed at the public and/or delta communities. In due course we hope to develop a second version of the toolkit to e.g., underpin community science at the community level, but this Version 1.1 is intended for respondents and decision-makers with a more in-depth knowledge of the wider delta system and sustainability issues.

What is the aim of the DeLTAS toolkit?

The DeLTAS Toolkit uses your **knowledge** and **insights** into your specific delta and its current condition to assess your delta's sustainability status or resilience potential. The DeLTAS Toolkit has been developed from the [Living Deltas Hub](#) research program focusing on the Ganges-Brahmaputra-Meghna (GBM), Red River and Mekong River deltas, and is designed to be applicable to any populated delta world-wide.

Why is a DeLTAS toolkit needed?

The DeLTAS toolkit is designed specifically to assess the status and sustainability potential of your delta. A river delta is a landform created by the deposition of sediment that is carried by a river and enters slower-moving or stagnant water. River deltas are important in human civilization, as they are major agricultural production regions and typically are highly populous. Human activities in both deltas and the river basins upstream of deltas is radically altering delta environments and extensive anthropogenic activities in deltas drastically interferes with geomorphological and ecological delta processes. River deltas comprise only one per cent of global landscapes yet support over half a billion people through their rich resources and economic opportunities. Societies living on deltas rely on these abundant but dynamically changing resources, building tightly coupled delta social-ecological systems (SESs). Today, delta SESs are being altered at a greater rate than at any time in history, and many deltas face existential threats from over-exploitation of natural resources, climate change and predicted sea level rise, combined with sediment scarcity and sinking land.

The DeLTAS toolkit has been specifically designed to assess **delta sustainability** as determined by human impacts by examining the tightly coupled nature of delta social-ecological systems. This is important given the low-lying nature of many of the world's most populous deltas, historic and contemporary rates and extent of delta landscape change and degradation, and the potential for climate change to act as a 'wicked multiplier' to many of the issues already affecting these highly vulnerable delta landscapes (See FAQ '*Why not have a specialist toolkit focusing on just one delta element?*').

How does the DeLTAS toolkit work?

Given the tightly coupled nature of delta social-ecological systems, any sustainability assessment tool needs to integrate social and environmental dimensions equally.

We divide the delta social-ecological system into **NINE** major **elements** in three main groups.

Delta Ecosystem Vitality assesses your knowledge of the status and trends/changes in sediment regime, water flows and storage and ecology & biodiversity.

Delta Ecosystem Services examines your knowledge of provisioning, regulating and cultural ecosystem services.

Delta Social System examines your knowledge and insights into delta vulnerability & risk, how well the SDG agenda is applied in your delta, and governance & adaptation capacity.

The DeLTAS toolkit is therefore designed to use your **knowledge** of how human impacts are changing your delta and its various physical systems. Building on this, we ask questions regarding your **knowledge** of delta ecosystem services and threats to these. The assessment tool then examines your **knowledge** of rate of change in delta risk & vulnerability and examines how we apply (or do not apply) the UN Sustainable Development Goals (SDG) agenda is specifically applied (or not) in your delta. Finally, the DeLTAS toolkit explores to what extent effective and inclusive Governance is or is not in place on your delta to help manage for a more sustainable future.

Does the DeLTAS toolkit require specific data?

NO. The DeLTAS Toolkit does not seek access to any data that in any way may, or may not, be sensitive. The toolkit does not depend on any specific data availability for individual parameters or variables, meaning that no requirement is made of respondents to specifically refer to any data/datasets. In some places we provide open-text boxes, should you wish to elaborate on an answer or point to an external data source/portal.

We recognise that, in many countries, data relating to environmental and social systems is sensitive, protected or simply unavailable/not collected. So, the DeLTAS toolkit only relies on your knowledge (or otherwise) of delta condition for nine '**delta elements**' – delta ecosystem vitality (sediments; water; ecology & biodiversity), delta ecosystem services (regulating, provisioning and cultural ecosystem services) and the delta social system (risk & vulnerability; application of the UN SDGs; governance & adaptation).

Why not have a specialist toolkit focusing on just one delta element?

Devising an assessment toolkit to assess knowledge about one element (e.g., sediment, e.g., the SDGs in delta-specific contexts) would mean we lose the ability to assess **integrated delta-related knowledge** underpinning sustainability objectives.

The intention is not that respondents score highly by knowing everything about all 9 delta elements; instead a 'good' outcome could be that a specialist organisation/monitoring agency/department realise that while they may have a detailed knowledge base about one or more delta elements (e.g. water quality, quantity and distribution), their insights into other elements (e.g. governance &

adaptation) and whether knowledge about this element(s) is shared/sharable in their delta is lacking and thus integrated management is difficult.

The intention is not to use the DeLTAS toolkit to 'fix' a suboptimal delta system but, rather, indicate where, with more attention to previously less-considered aspects, things might improve with time, care, cooperation, innovative partnerships and/or directed effort. Given the toolkit is based on knowledge, we acknowledge that this involves some risks and caveats as **'knowledge'** *per se* has political connotations.

What is implied in the DeLTAS toolkit by 'delta-wide' and 'local'?

In the toolkit we use two main scales. **Delta-wide** means impacts or changes that can affect the entire delta. Examples might be sediment loss through upstream damming, or changes in wet and dry seasonality. In using the term 'delta-wide' we accept that some causes or impacts of change may be wider than the delta itself and extend basin-wide. If you feel change might be much wider than the delta in question please use this term, as opposed to **local** where we are implying changes and impacts on a much smaller scale - individual province or district, coastal-specific or upland-specific, or pertinent to a specific indigenous group or delta community.

The bottom-line for a more sustainable delta is that stakeholders – be they managers, practitioners, academics, policymakers, NGOs, industry, or community managers - have as integrated an understanding of the status of their delta environment as possible - and at a scale that is meaningful to them. For policymakers, this might be the entire delta, or a province or district; for communities the scale of interest will be much smaller.

What are Fillout forms?

The DeLTAS toolkit is designed using the WordPress platform so that access to you is free and unrestricted, and no licence is needed to run the app. The questions we pose are hosted on what are called Fillout forms. The answers you provide will be emailed to you - if you provide an email address where indicated - so you have a record of your responses, as well as allowing aggregate responses to be recorded by the DeLTAS team to other platforms such as Power BI for interpreting and displaying aggregate results per delta (see FAQ '*Are my responses anonymised?*').

How is my information managed?

The DeLTAS toolkit draws on the five years of experience and protocols (including agreed metadata) developed for the [Living Deltas Hub](#). For common data standards, we will work to international disciplinary standards where they exist, and with reference to the UK Data Services' Guidelines. The project will follow the **FAIR Data Principles** (Findable, Accessible, Interoperable, Reusable); and make all data comparative, transferable, and shareable, in the first instance within the project (using an established SharePoint repository) and then for external sharing of aggregate delta outcomes via the Living Deltas Hub [website](#). Responses with supporting metadata will be archived into a long-term repository hosted at Newcastle University in the UK.

Are my responses anonymised?

In the forms we do not require you to add your name, or institution or to identify yourself in any way. However, we do provide space for these details to be supplied as information about the specialism of respondents is useful and valuable context). We do require you to choose the delta name from a drop-down list.

If you choose to complete the DeLTAS assessment anonymously, we are unable to provide you with an emailed copy of your answers. Such a record is useful if you wish to repeat the DeLTAS toolkit later to assess specific improvements/track changes for your delta in the intervening period (see FAQ ‘*Can I repeat the DeLTAS toolkit to assess delta change through time?*’).

Can I repeat the DeLTAS toolkit to assess delta change through time?

Repeating this assessment can provide evidence of (a) improvement and/or (b) further degradation of aspects of (1) delta vitality, (2) delta ecosystem services and/or (3) the delta social system over time. This can be done by simply reapplying the assessment later, or after specific interventions have taken place. Should you wish to do this, it will be important to record your initial answers. This is done by entering an email address, so a full record of your responses can be automatically generated and sent to your email address for comparing to subsequent application(s) of the toolkit at a later date in time.

The DeLTAS toolkit assesses nine delta elements. In scoring, are these weighted in any way?

NO. The work on key Asian mega-deltas carried out by the [Living Deltas Hub](#) since 2019, and continuing via the Living Deltas Network from 2024 on, demonstrates that a transdisciplinary* approach giving equal priority to the natural & physical sciences, the social sciences and the arts & humanities is the most appropriate way to derive solutions for the highly complex and interrelated issues that impact deltas, their ecosystems, and the societies that depend on these ecosystems. So, to weight any element over others would introduce bias. A sustainable delta future depends on each of the nine elements being meaningfully and equally incorporated in wider planning, policy- and decision-making, and management.

The DeLTAS toolkit provides you with a simple, high level, **DeLTAS Dashboard** to indicate which of the nine elements score highly, and which elements more urgently require attention/intervention. The number of questions posed vary for each of the nine elements, and all scores are translated into percentages for consistency and ease of interpretation.

* Here we use the Utrecht University definition of **transdisciplinarity** as ‘*research that integrates knowledge across academic disciplines and with non-academic stakeholders to address societal challenges.*’ It is guided by the principle that scientific rigour meets societal relevance.

How is the DeLTAS toolkit scored?

Each question is scored on a scale from zero to 3. For each of the nine DeLTAS elements, the Toolkit will ask you to indicate your level of agreement (or disagreement) with a series of statements or questions. Responses indicating a high **degree of confidence** in your knowledge (choosing either ‘strongly agree’ or ‘strongly disagree’) may result in follow-up questions as to scale of impact,

timescales of change, and trends. Indication intermediate levels of confidence in answers will score either 1 or 2.

There are no 'right' or 'wrong' answers. Answers are scored from zero (i.e. 'don't know') to 3. Intermediate confidence in answers will score either 1 or 2. The stronger your **confidence** in your answers (choosing either 'strongly agree' or 'strongly disagree'), the higher will be your score per element.

How are my answers displayed to me?

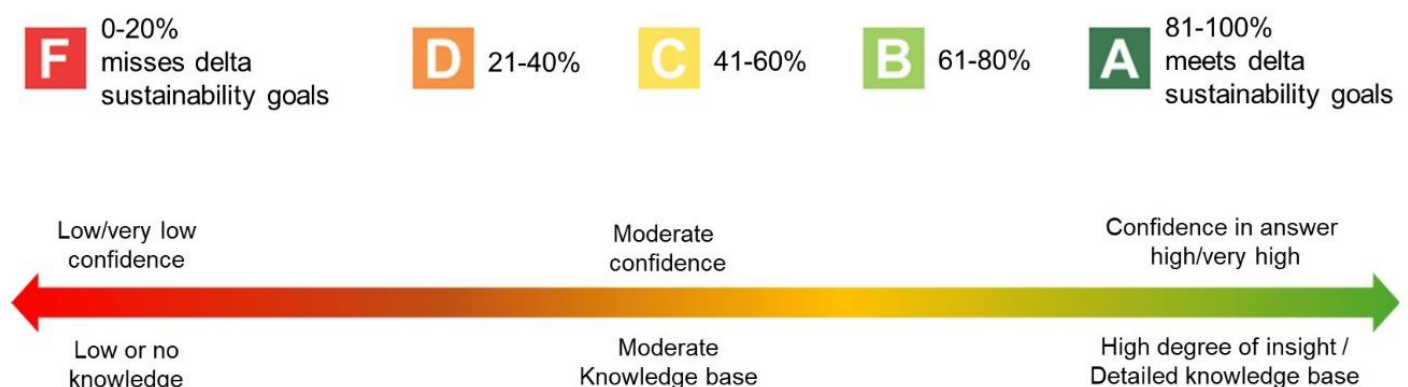
The knowledge-based answers you provide allow a simple-yet-robust assessment of the socio-environmental status of your delta. Scores are displayed as percentages for ease of interpretation.

Scores for each of the three elements in each of Delta Vitality, Delta Ecosystem Services and Delta Social System are presented as percentage scores for each denoted by the same 'stop light' colour scheme as devised by the University of Maryland's [Integration and Application Network](#) environmental report card system.

Report cards are powerful tools for describing delta ecosystem status, increasing public awareness, and informing and influencing decision makers in efforts to improve the 'health' of a delta. Report cards are effective in measuring delta ecosystem condition and susceptibility and adaptation potential. They demonstrably help communities, governments, and organizations identify goals for ongoing activities, and measure progress toward those goals. They provide a snapshot of current progress and allow for tracking continued improvement over time. They also can effectively highlight gaps in data, policy and planning, delta resilience and social equity.

What does the DeLTAS Dashboard colour scheme indicate?

Indicators in **dark green** are those for which sustainability and adaptation goals are met for a particular category. **Light green** indicators are close to meeting their delta sustainability goals. **Yellow** indicates your delta is being managed for climate change and other pressures and drivers, but not adequately, and **orange** suggests the delta is nearly failing to meet sustainability objectives.



Categories shown in **red fail** to meet sustainability or adaptation goals. Yellow, orange, and red indicators require much more work to reach optimal sustainability under current pressures. In terms of grade marks, dark green is scored as an **A**, light green a **B**, yellow a **C**, orange a **D**, and red an **F**. The lower and upper sectors of each grade are designated by e.g., B minus (**B-**) and **B**.

What happens if I simply don't know anything regarding a specific question(s) or entire delta element?

The more integrated knowledge or understanding is for all three of **Delta Vitality, Ecosystem Services**, and the **Delta Social System**, the greater will be the opportunities for more sensitive delta planning and management. Gaps in understanding risk less optimal management strategies or policy interventions in the future - and so it is important that (a) gaps in understanding and (b) areas of less integrated knowledge of the delta system are identified as clearly as possible by the toolkit.

Lack of knowledge regarding a specific delta element(s) is not thus an issue, but if gaps are identified then that information can be used to guide future discussions with other delta agencies which may well have a fuller knowledge base about that specific element. Answering '**Don't know**' will score a zero for that question and if you have little or no knowledge about a specific element (e.g., water; governance & adaptation) then the DeLTAS Dashboard score for that element will reflect this. This does not mean the **status** of the delta is poor for that element - rather that future efforts might well need to be directed in improving the knowledge base. To inform this, feedback for each element in the toolkit's DeLTAS Dashboard indicates what percentage of an element's score is comprised of 'Don't know' answers.

What are the follow-up questions in the DeLTAS toolkit for?

Some responses will open follow-up questions about scale & pattern, trends, and rates of change. **Follow-up questions are not scored** for the DeLTAS Dashboard but provide extra granularity and depth to your answers. In some places we provide open-text boxes, should you wish to elaborate on an answer or point to an external data source/portal.

Must I complete the questions in one go, or can I return to the questionnaire later?

Given the intention for the DeLTAS toolkit to examine the sustainability potential of tightly coupled delta social-ecological systems, the questionnaire is designed to be taken in one go so that all nine delta elements receive the same attention / degree of reflection. However, if you enter the essential information requested (i.e. delta name) and submit your already completed forms and questions, you will be asked on re-entering the DeLTAS web app: '*You appear to have a submission in progress. Would you like to continue?*' with two options: '*Start again*' or '*Continue*'. Clicking '*Continue*' will take you to the point you were at when you left the survey before. If you have left the exercise without submitting any Fillout form(s) and moving to the next of the three sections, you will not necessarily be asked the above questions, but your previous answers should still be visible.

The DeLTAS toolkit is in English – can I access it in my preferred language?

Rather than designing multiple versions of the DeLTAS toolkit, if you launch the toolkit through Google <https://www.google.com/> and search specifically for '**deltastoolkit.com**' you will be taken to the toolkit, at which point you can click on the three small vertical dots in the top right of your screen, select **Translate** from the drop down menu and choose any language you wish. While translation might not be word-perfect, this should optimise your experience.

I don't know anything about one or more of the nine elements. What does this do to my overall score?

The DeLTAS toolkit assesses your knowledge/insights/informed opinion of delta status – not delta status itself. There is no escaping the fact however, that a low score for one or more of the nine elements will reduce the overall percentage score for the delta as a whole – even though the overall score might not reflect the fact that the delta may be quite healthy as regards that/those aspect(s).

Answering **Don't know** will score a zero for that question, and if you have little or no knowledge about a specific element (e.g., water; governance & adaptation) then the DeLTAS Dashboard score for that element will reflect this. Feedback for each element in the toolkit's DeLTAS Dashboard indicates what percentage of an element's score is comprised of 'Don't know' (zero scoring) answers.

Specific gaps in knowledge are identified by the exercise. What are the next steps?

We repeat, lack of knowledge regarding a specific delta element(s) is not an issue, but if gaps are identified then that information can be used to guide future discussions with other delta management/monitoring/planning agencies which may well hold a more complete knowledge base about that specific element.

We emphasise that this does not mean the status of the delta is poor for that element – rather that future efforts might well need to be directed in improving your/your organisation's integrated knowledge base around that element (e.g., governance & adaptation; ecology & biodiversity).

Repeating the DeLTAS toolkit again after time spent in seeking improvements/expanding the knowledge base will potentially be informative. (see FAQ '*Can I repeat the DeLTAS toolkit to assess delta change through time?*').