

Plastic pollution assessment methodologies suitability toolkit

V1.0



Frequently asked questions & troubleshooting



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Frequently asked questions

What is the aim of PLAST?

In response to the plastic pollution crisis, many methodologies for quantification of plastic pollution have been developed. However, the breadth of these plastic pollution assessment methodologies makes it difficult for practitioners to assess which methods are best suited for their needs. The 'Plastic Pollution Assessment Methodology Suitability Toolkit' (PLAST) has been designed to characterize and compare assessment methodologies to suggest the most suitable options based on a user's requirements

Who should use PLAST?

PLAST is designed to aid all users interested in applying plastic pollution assessment methodologies, for example those shown below:



Government



NGOs



Local authorities



Businesses



Academia



Developers

To apply PLAST, we recommend input from both **high-level users** focused on overall objectives, policies and resources; as well as **technical users** familiar with plastic pollution assessment methodology terminologies, data availability and required outputs.

What is meant by a methodological approach?

Whilst many plastic pollution assessment methodologies exist, each with their own unique method and results, each methodology can be grouped into one of four main approaches, known hereafter as 'methodological approaches'. Plastic pollution assessment methodologies generally rely on one or more of the following four methodological approaches:

Transfer coefficient



The transfer coefficient approach is a top down method where flows are distributed according to coefficients. For example, the amount of mismanaged waste which may enter oceans. When applied as the primary method, the transfer coefficient approach is typically adept at requiring low resources and giving gross estimations to guide policy. Transfer coefficient approaches tend to provide a simplistic overview of the plastic flows in the solid waste management system.

Material flow analysis



Material flow analysis aims to model the flows and stocks of plastic waste within a solid waste management system to a much greater detail than that used in transfer coefficient based approaches. Although in its simplest form transfer coefficients are used to calculate the distribution of waste flows, more complex forms can be used such as probabilistic material flow analysis which incorporates uncertainty of flows, or data validation and reconciliation which

aims to harmonise different measurements within the system. Material flow analysis approaches tend to be used when a detailed assessment of the solid waste management system is required.

Statistical / trend analysis



Statistical or trend analysis approaches are a bottom up approach typically used to understand the amount of plastic pollution in different environmental compartments via measurements. Results give a snapshot of the plastic pollution in an area at a moment in time, but can be conducted over longer periods to assess how the amounts of plastic pollution changes with time. They are often utilised to develop baselines or monitor the impact of interventions..

Hydrological modelling



Hydrological and transport modelling approach aims to harness the considerable experience that has been amassed in hydrological models and transfer this to the problem of plastic pollution. Typically using geographic information system (GIS) analysis, this approach is primarily focused on understanding how plastic in the environment may move and transfer to the ocean by combining estimates of terrestrial/riverine plastic with information on rainfall and river characteristics

The relative suitability of each methodological approach is scored within PLAST based on a user's high-level objectives (Part A questions). These results are useful in providing an indication of the type of methodological approach which may be best suited for a user, without suggesting specific methodologies.

What is meant by a plastic pollution assessment methodology?

A plastic pollution assessment methodology is defined here as a methodology that quantifies plastic pollution, providing knowledge and understanding in order to effectively act. As such, assessment methodologies which focus on the ecological impacts of plastic pollution for example, are omitted. Similarly, methodologies developed simply for the collection of data, which lack any interpretive analysis are also deemed out of scope. A full summary of the criteria for including assessment methodologies is provided in the accompanying user manual.

How does the toolkit work?

PLAST works by having a database of in-scope plastic pollution assessment methodologies each of which has been characterized according to a framework. This framework is composed of three parts:

- (1) The aim and resources required by the assessment methodology.
- (2) The technical outputs of the assessment methodology.
- (3) The data requirements of the assessment methodology.

Users then complete a series of questions that are framed around these three main parts to describe their requirements and resources. For many questions, this includes the ability for the user to state how important a particular feature or output is to them. PLAST then scores each assessment methodology based on the user's answers to suggest the ones likely to be most suitable. Higher weighting is given to features the user scores as 'important' (compared

to a 'preferred' feature), whilst features specified as 'essential' act as a filter and remove all assessment methodologies that do not include this feature.

Further details on the method used within PLAST to score assessment methodologies is provided in the accompanying user manual.

What if a question isn't relevant to me?

Users may skip any questions or *question options* that are not relevant to them, with all skipped questions not impact the scoring of methodologies. However, it is encouraged that users view each question in turn and decide if it is relevant to them rather than skipping to only the questions they consider relevant. This is to avoid users missing questions that may be relevant to them only once they have considered the possible *question options*. To assist in this, PLAST is designed to encourage users to check each question sequentially. Once a question has been viewed, users may return to that question at any point to change their answers.

What is meant by 'essential', 'important', 'preferred' and 'not essential'?

The majority of *question options* have these terms as the possible answers for the user to select, particularly for those in Part B – Technical objectives. These terms are provided in order for the user to specify how important it is that the assessment methodology can satisfy each option, with the terms ranked in the following order of importance (starting from most important) in the multicriteria decision making:

Essential > Important > Preferred > Not essential

If a user selects 'Essential' as an answer, only assessment methodologies that include this feature will be suggested as possible suitable methodologies. 'Essential' thereby acts as a filter and should only be used when having that feature is vital. Answers of 'important' and 'preferred' do not act as a filter, but instead are used to rank how suitable the available assessment methodologies are. 'Important' has a higher weighting than 'preferred' and therefore allows the user to distinguish the relative importance of non-essential features. Lastly, if a user selects 'Not essential' (default option), then assessment methodologies will not be scored based on this question.

How do I save my answers and results?

Any changes to PLAST, such as viewing or answering questions, or the generation of results can be saved by clicking the cross in the top-right corner of the main page. A message will appear asking users whether they wish to save their progress. Click yes to save. Alternatively, the results can be saved by saving the PDF of the 'Results comparison page'.

Troubleshooting

PLAST does not open / work

Please follow the instructions in Section 2 of the accompanying user manual. Ensure all open workbooks of Microsoft Excel are closed before opening PLAST.

The results say ‘No methodologies match criteria’

This typically occurs when either too few questions have been answered to populate results, or too many ‘essential’ answers have been specified so that no methodologies match them all. Try reducing the number of ‘essential’ answers by converting any that are not completely essential to ‘important’.

I do not understand the question / option?

Definitions of each question can be read by hovering over the question in the question ribbon, or by hovering over the  icon next to the question text. Definitions of each question option can be viewed by hovering over the relevant option text. It is recommended that if users do not understand a question, it is better to leave it as ‘Non-essential’ than to incorrectly answer the question. High-level users are recommended to complete Part A questions whereas more technical users should complete Part B and C.

Why do the same methodologies always appear?

This is typically because of two reasons:

1) When the user has provided only a few inputs the results will start to populate. However, as there are not many inputs to rank them by, many methodologies are likely to rank equally. In such cases, the toolkit is forced to assign the top 3 ranked methodologies by alphabetical order, meaning that the same methodologies often show up. It is suggested that users complete more of the questions to allow the decision making algorithms to better distinguish between the methodologies.

2) If the user has selected an answer as ‘essential’ that only a small number of methodologies satisfy, this will by default only include these methodologies in the results. Try reducing the number of ‘essential’ answers to allow more methodologies to be suitable.

The toolkit does not include a methodology

A comprehensive literature review was performed to ascertain all the available plastic pollution assessment methodologies that fit within the scope of those allowed. However, as this is a rapidly evolving field new methodologies may have been subsequently released or previous methodologies excluded. In such cases, please contact the development team with a request to add a new methodology.

I am unable to open the Compare (PDF) results.

The Compare (PDF) button only becomes active once sufficient answers have been input to show results. Please ensure all PDF documents are saved and closed before clicking the Compare (PDF) button.