

NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN - INDIA

## ASSESSING DATA QUALITY AND RELIABILITY<sup>1</sup>

A Note for Executing Agencies<sup>2</sup>

A frequent problem that is encountered while conducting research based on published and unpublished sources is the varying quality and authenticity of the data that is reported. This problem is faced especially in subjects related to biodiversity, as the scope of the subject is vast and it covers innumerable taxa and a variety of thematic approaches. This note is to provide some basic framework for making judgements about the data quality and reliability while accessing the literature.

**PEER REVIEW:** The value of any published material is judged initially by the fact if it has undergone peer review or not. As professionals in the field all of us are aware of the reputed national and international journals in our area of work. Journals are of varying quality and depending on which journal the article is published one can make a judgement about accepting the stated facts. Unpublished reports, in-house publications, manuscripts which have not been reviewed and the like constitute the enormous list of grey literature. This literature often holds very important facts but since it has not undergone any peer review some caution is advised while using the material.

**CITATIONS:** Any publication should have citations in the text for material which is quoted in the text but not based on original research of the author(s). Any publication which does not include proper citations in the text and followed by a complete bibliography is a cause of worry.

**TIMELINESS OF DATA:** There has been an explosion in scientific literature in the field of biodiversity research and conservation. Hence it is important to seek out the more recent publications; rather than depend exclusively on much older papers. Recent publications which do not incorporate the recent published literature needs to be dealt with care.

**STATEMENT OF METHODS:** It is crucial for the authors to explicitly state the methods used for data gathering and analysis. Without a detailed statement on the data collection and analysis techniques and protocols it is very difficult to judge the reported results. Any paper which does not report the methods in sufficient detail will require careful scrutiny.

**VARIANCE WITH ACCEPTED FACTS:** There is a fairly good understanding of the broad patterns of our biodiversity, especially regarding its distribution with reference to the biogeographical zones and areas of species richness. Any reported facts which are at obvious variance to these established patterns will need careful scrutiny prior to use in any subsequent compilation or publications. This is not to state that new and interesting findings should be

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<sup>1</sup> This note applies primarily to data and information gathered through formal research and studies; it will not necessarily apply to information from the 'informal' sector, such as local communities. This is especially true of verification methods such as peer review, previous publications, citations, and so on, which would be irrelevant in the case of community knowledge and information. Communities have their own measures or indicators of verifying or judging information, but these are not covered in this note.

<sup>2</sup> This note has been prepared by Ravi Chellam, Member, TPCG, with inputs from other TPCG members.

rejected but is more to caution the user, for if the reported facts are incorrect then they will get perpetuated by subsequent use in publications.

In the case of reporting of new patterns, sightings, and so on, the authors will have to give adequate and ecologically acceptable explanations to the reported facts. The discussion part of any paper is very important in explaining and elaborating the results.

**PUBLICATION RECORD OF THE AUTHOR:** The publication track record of author is another clue to the quality of work. This can only be a broad principle of guidance and cannot be used to judge individual papers. This does give an idea of what is the normal quality of work of the individual. An author with an extensive publication record in good peer reviewed journals, obviously has a proven track record of good quality research.

**INSTITUTIONAL AFFILIATION:** This fact can also be used only as a broad principle of guidance. Good institutions can have bad researchers and good researchers are in institutions with a poor reputation.

**EXPERT KNOWLEDGE:** The value of expert knowledge should not be undermined. This expert knowledge can be from local people, non-scientists as well as scientists. While it is very important to recognise the value of expert knowledge, it is equally important to ensure that this gets adequately verified and confirmed.

**VIEW OF PEERS:** The opinion of multiple peers can be availed of to make judgements about some tricky issues. This will enable a more broad-based decision making.

**CONTEXT OF INFORMATION:** The overall context within which the information is being provided could give clues to its authenticity or accuracy. If, for instance, the information results are all leading to an obviously biased opinion or judgement (e.g. that a dam can be built because there is no ecological impact, even though it is submerging evergreen rainforests), there would be reason to question their veracity and reliability.

These aspects should be borne in mind while reviewing documents, conducting research, collating information, and analysing results. They are not fool-proof methods of judging the quality and veracity of the information, but could take the reviewer closer to such judgement.