TECHNICAL BRIEF

August 2017
The WRC operates in terms of the Water Research Act (Act 34 of 1971) and its mandate is to support water research and development as well as the building of a sustainable water research capacity in South Africa.

Tested buffer zone guidelines for wetlands, rivers, and estuaries developed

A Water Research Commission (WRC) study has been completed on buffer zone guidelines for wetlands, rivers, and estuaries.

Rationale

This report is a refinement of the 'Preliminary guideline for the determination of buffer zones for rivers, wetlands and estuaries' (K5/2200). An opportunity was provided to test the preliminary guideline at a series of national training and development workshops. A key recommendation that came out of the workshops was the compilation of a technical manual and a separate practical guide.

The technical manual highlights the complete process that was followed in the development of a guideline for the determination of buffer zones for rivers, wetlands and estuaries. It provides the concepts, background and technical aspects of the approach required for determining appropriate buffer zones

The separate practical guide provides users with the step-by-step procedure required to consistently determine aquatic impact buffer zones. In addition, the buffer zone tools were developed for determining desktop buffer zones where no major impact is expected and thereby save on costs. The technical manual therefore needs to be used in conjunction with the practical guide and or desktop buffer zone tool, where necessary. It is hoped that these tools provide the required scientifically defensible approach to determining buffer zones

Aims

The primary aim of the study was to develop a refined guideline for the determination of buffer zones for rivers, wetlands and then conduct national training workshops to train stakeholders how to apply the methodology developed to determine buffer zones.

Study approach and product

The buffer zone determination guidelines were refined through workshop interactions across the country, mainly focused on practitioners. The Practical Guide produced is one of the key outputs of project. The report is designed to be used together with a range of accompanying outputs that were produced. A brief summary of each product is outlined and the relationship between them is shown diagrammatically below Fig 1:

- **Part 1: Technical Manual:** This report documents the step-wise assessment procedure developed to determine appropriate buffer zones for rivers, wetlands and estuaries. This includes the rationale for the approach taken, together with important supporting technical information which was used as a basis for developing the tools for buffer zone determination.
- **Part 2: Practical Guide:** The Practical Guide was developed to assist users with the practical application of the buffer zone tools. It includes field sheets and practical guidance for collecting and interpreting relevant desktop and field information. Supporting information required to assess selected criteria has also been compiled, and includes a range of spatial datasets (i.e. shapefile or KML format).
- **Tools for Buffer Zone Determination:** A range of spreadsheet-based tools has been developed to help users determine suitable buffer zone requirements. These include a rapid desktop tool for determining potential aquatic impact buffer zone requirements, as well as three site-based tools for determining buffer zone requirements for rivers, wetlands and estuaries. Once completed, the outcomes of the site-based assessments can be exported as Mitigation
- **Measures Tool:** This tool is essentially a consolidation of supplementary mitigation measures from a wide

range of reference material. It is designed as a quick access point for users with a broader interest in impact mitigation or those who advise on measures to mitigate impacts on water resources.

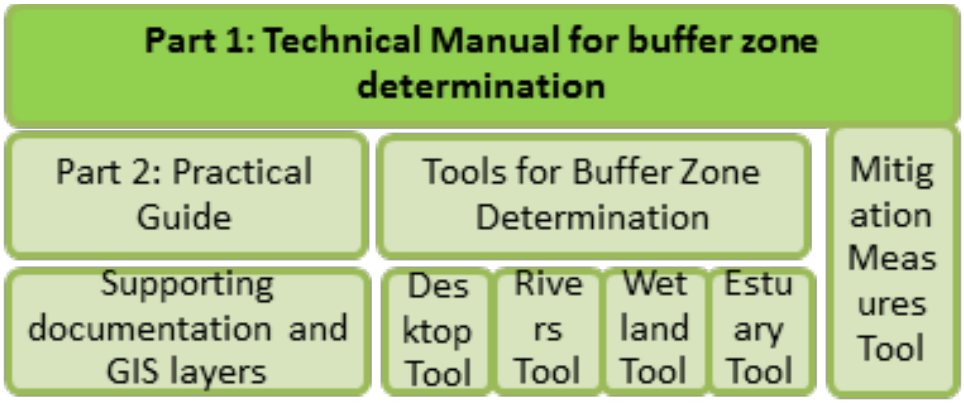

Fig 1. *The diagrammatic relationship between different buffer tools and how they complement each other.*

The assessment procedure

The Technical Manual sets out a step-by-step approach for determining best-practice buffer zone requirements for rivers, wetlands and estuaries.

This includes guidance on how to complete both desktop and site-based assessments, with further guidance included in the Practical Guide. A series of Excel-based Buffer Zone Tools have been developed in order to help users objectively determine suitable buffer zone requirements.

This includes a rapid desktop tool for determining potential aquatic impact buffer zone requirements together with three site-based tools for determining buffer zone requirements. Central to these tools is a Buffer Model, which is populated automatically from the data capture sheets provided. This is based on best-available science and is used to generate buffer zone recommendations as part of the assessment process.

Conclusions and recommendations

These guidelines are the first attempt to develop nationally applicable guidelines for buffer zone determination in South Africa, and to provide guidance for activities planned adjacent to rivers, wetlands and estuaries. They are to be used and applied as part of a broader suite of tools to ensure that water resource management is appropriately integrated into development planning and land use management.

The approach presented in the guidelines is based on best-available science. However, the authors recognise that ongoing research, changes in government policies or challenges with the practical application of the guidelines may necessitate a revision over time.

The authors encourage government departments and the business sector both to promote the application of the guidelines and to identify and address conflicts with other guidance that may exist both locally and nationally. Training and capacity building are also critical for the effective use of these guidelines. DWS is therefore encouraged to provide focused training on these guidelines and to support learning institutions in developing and running suitable training courses.

Further reading:

To obtain the report*s, Buffer zone guidelines for rivers, wetlands and estuaries technical manual (***Report No. TT 715/1/17***)* and *practical guide (***Report No. TT 715/2/17***)* contact Publications at Tel: (012) 761-9300; Email: orders@wrc.org.za or Visit: www.wrc.org.za to download a free copy.