

National Aquatic Ecosystem
Biomonitoring Programme

**Compiling State-of-Rivers
Reports and Posters:
A Manual**

NAEBP Report Series No **17**

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PURPOSE OF THIS DOCUMENT

Compiling State-of-Rivers Reports and Posters: A Manual captures the learning gained from State-of-Rivers (SoR) reporting to date. It focuses on what should be reported and what teams should know before and while producing state-of-rivers reports. This manual aims to guide provincial teams through a state-of-rivers reporting process.

The manual starts with a short section on the history of SoR reporting in South Africa. Thereafter, the reasons for reporting on the state of rivers are explained. To define the audience and to know why rivers are reported on will assist the reporting team to make relevant decisions while the report or poster is developed. Often, by reflecting on the purpose of a specific report or poster and whom it is intended for, the way to convey certain messages becomes clear.

This manual, without being too prescriptive, discusses the successful approaches used in SoR reporting to date. It includes the rationale for including certain sections SoR reports. It explains concepts such as the DPSIR approach that was adopted from SoE reporting. Other concepts such as river health categories, biomonitoring indices and ecoregions are unique to the River Health Programme. The related information is given to explain the relevance to SoR reporting and should not replace the technical documents.

To ensure that this document can be used as a reference document or manual, there is some repetition and numerous cross-references to other sections in the document.

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1. INTRODUCTION

1.1. THE RIVER HEALTH PROGRAMME

The River Health Programme (RHP) is a national biomonitoring programme that collects, collates and distributes information on the overall ecological state (or “healthiness”) of river ecosystems in South Africa. The RHP supports ecologically sound water resource management through better understanding and, therefore, better management of river ecosystems.

State-of-Rivers (SoR) reporting is the communication tool through which the necessary river health information is conveyed.

The production of SoR products is dependent on several of the other activities within the RHP, e.g. river surveys, data management and interpretation of the data. Figure 1 represents the stages involved in the RHP implementation cycle.

SOR REPORTING IS THE VEHICLE THROUGH WHICH RIVER HEALTH INFORMATION IS COMMUNICATED

FIGURE 1

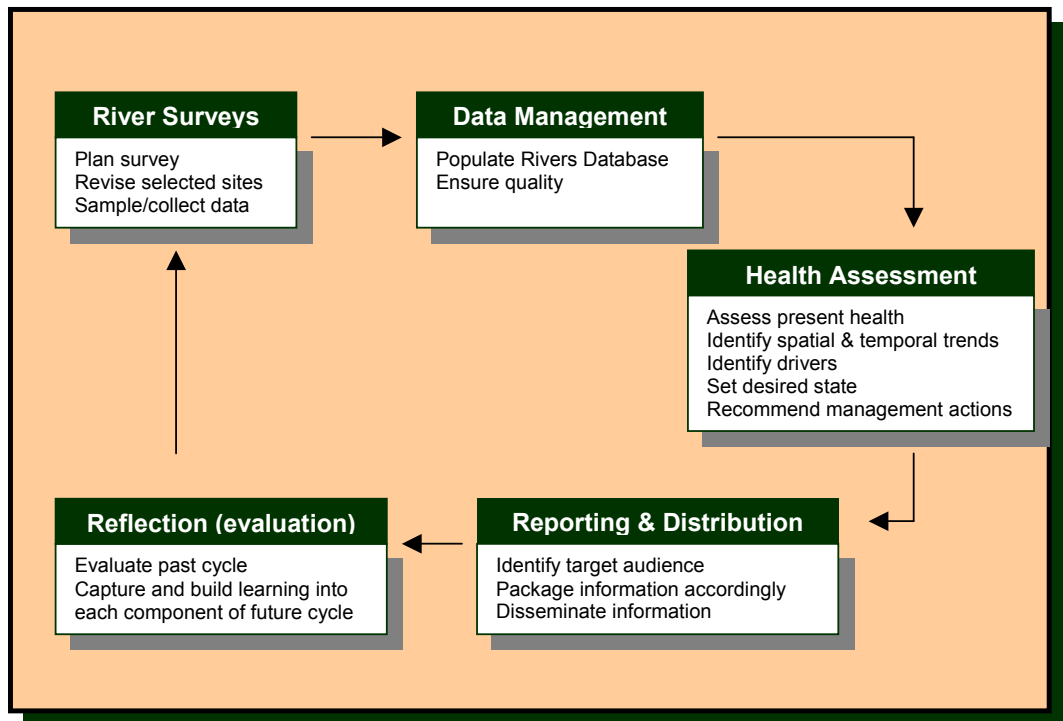


Figure 1. Adaptive implementation cycle for the River Health Programme(RHP) (after Roux, 2000. SA Waterbulletin (26) 4).

1.2. THE HISTORY OF STATE-OF-RIVERS REPORTING

Historically, river survey data and assessments were compiled in technical reports. These thick reports contain useful information but often do not reach the decision-makers and managers and seldom have the necessary impact. The SoR report does not substitute for the technical reports. It is a user-friendly report that complements the technical reports and puts the information within easy reach of a broader reader group.

The first prototype publication, published in 1998, covered the Crocodile River in Mpumalanga where the pilot RHP studies were conducted and can be viewed at: http://www.csir.co.za/rhp/state_of_rivers/croc_98.html . It was soon thereafter followed by a generic River Health Poster where some of the reporting concepts are explained e.g. the river health indicators and classification system. The poster can be viewed at: <http://www.csir.co.za/rhp/poster.html> .

Since the development of these pilot products, SoR reports/posters on river systems were produced within four of South Africa's provinces (Mpumalanga, Limpopo, Free State and Kwazulu-Natal).

The SoR reporting series to date include the following SoR reports:

Crocodile, Sabie-Sand & Olifants River Systems (March 2001).

Letaba & Luvuvhu River Systems (November 2001)

uMngeni River and neighbouring rivers and streams (August 2002)

Hartenbos and Klein Brak River Systems (March 2003)

and two posters:

Modder River (2001)

Southern Gauteng Rivers (March 2003).

The learning published in this manual was collated from the production of the abovementioned reports and posters. Web or pdf versions of all the reports and posters can be viewed on the web: http://www.csir.co.za/rhp/state_of_rivers.html.

1.3. SoR AND SoE REPORTING

State of Environment reports are reports that describe the state of the environment in a city, region or country. They are one of the tools used to monitor and assess changes in the environment and to plan for effective environmental management.

The State-of-Rivers (SoR) reporting concept was designed to complement national State of Environment (SoE) reporting. There is significant overlap in concepts and guidelines used by the two initiatives. However, information concerning river catchments provided in a SoR report is usually of a more detailed nature than would be found in a national or provincial SoE report.

The national SoR reporting team (see section 7.2) should ensure that the SoR reporting products complement SoE reporting (e.g. reporting format, summary diagram etc.). This can be obtained through communication with the national SoE reporting team at the Department of Environmental Affairs and Tourism.

THE SoR
REPORTING SERIES
INCLUDES NINE
RIVER SYSTEMS
TO DATE.

SoR REPORTING
SHOULD
COMPLEMENT SoE
REPORTING.

The SoR reporting process is a dynamic process and emphasis might change over time. All changes, however, should be carefully considered and linked with SoE requirements. Provincial Implementation Teams and Water Management Agencies will have to ensure continuation of this function, as they become independent in their SoR reporting.

More information on SoE reporting can be obtained on the web:

Cookbook for SoE Reporting - <http://www.grida.no/soe/cookbook/>

The South African Guide to Producing a State of the Environment Report - <http://www.environment.gov.za/soer/resource/soeguide/index.htm>

1.4. SoR REPORTING FACILITATES OBJECTIVE REPORTING

SoR reporting, like SoE reporting, must be objective under all circumstances so that it gives a true reflection of the current state, according to the river health indices.

Through the vehicle of reporting, the current state of our river systems is communicated. Reporting also gives information on what is causing change or what has previously caused it. Recommendations on the areas that need attention and that should be changed are also included.

SoR REPORTING
IS OBJECTIVE
AND
TELLS THE STORY
AS IT IS.

2. WHY DO WE REPORT ON THE STATE OF RIVERS?

SoR reports and posters capture, in short, the health assessments and related information of rivers. The River Health Programme (RHP) gathers loads of information related to the health of rivers. This information on its own does not add any value towards ensuring sustainable development of our river systems. In order to gain maximum benefit from this river health information, it should be communicated in the right way to the right people.

SoR reporting sets out to:

- Supply relevant information to government and agencies that will encourage sound environmental decision-making
- Inform the people of South Africa about the health of our rivers
- Provide spatial and temporal benchmarks through continuous monitoring and reporting
- Highlight problem areas and management options
- Enable auditing of management performance

2.1. SUPPORT ENVIRONMENTAL DECISION-MAKING

The Department of Water Affairs and Forestry and agencies need information on the state of South Africa's rivers to be able to improve river management. The reports will aid the comparison of environmental conditions and performances of different areas, thereby substantiating the effects of different impacts or drivers. This information would ensure that the decisions made would benefit sustainable development.

The design and implementation of sustainable development strategies relies on ongoing monitoring, analysis and reporting. The purpose of the National Water Act (No. 36 of 1998) is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled. The ways in which this is done should take into account, amongst other factors, the protection of aquatic and associated ecosystems and their biological diversity, and the reduction and prevention of pollution and degradation of water resources. The National Environmental Management Act (No. 107 of 1998) requires that the environmental principles as set out in section 2 of the act be applied in decision-making. These principles include for example what should be done to achieve sustainable development (socially, environmentally and economically), and guide stakeholders in the integrated way in which they should manage the environment.

SoR reportings supply information on river health that could assist government departments in implementation of the relevant acts mentioned above. They also provide local resource management agencies with information that can be disseminated to wider audiences through alternative formats and the media.

It is mandatory for local government to generate integrated development plans (IDP). IDPs are five-year strategic development plans for municipalities. The purpose of the IDP is to allow local authorities to set out their vision, objectives,

WISE
ENVIRONMENTAL
DECISIONS RELY
ON THE AVAILABILITY
OF SOUND
INFORMATION.

strategies and key projects, while guiding their development and budgetary processes. An IDP integrates important sectors, issues and concerns in a systematic and integrated manner (e.g. the environmental, social, economic and organisational environments) and is crucial for sustainable service provision. The IDP process is a structured process that allows planning to be consultative and strategic, while remaining focused on issues of implementation. The IDPs guide all other plans at a local level.

Legislation for the development of IDPs was initiated in the Development Facilitation Act, Act No. 67 of 1995 (Chapters 1 and 4) and the Local Government Transition Act, Act No. 97 of 1996. To enable municipalities to fulfil their legal mandate, the Municipal Systems Act, Act No. 32 of 2000, requires that each municipality draft an IDP.

The process for the development of IDP requires holistic thinking. Sectors, issues and concerns are viewed not in isolation but in an integrative way in order to optimise the use of resources. The information contained in national, provincial and sectoral SoE reports provide valuable information for the development of IDPs, particularly for the analysis and monitoring phases.

2.2. INFORM THE PEOPLE OF SOUTH AFRICA

SoR reporting satisfies the need to have information on South Africa's river systems readily available, regularly updated and in a comprehensible format that provides information to the people of South Africa.

SoE reporting was developed in response to the need for appropriate information that is coordinated and communicated to assist with environmental decision-making (www.environment.gov.za/soer/general/initiative.htm#soe). Similarly, relevant and regularly updated information on South Africa's river systems is needed for sound decision-making. State-of-Rivers reports, together with others such as the Cities State of the Environment Reports and State of Estuaries reports, ensure that the public is informed of:

- The consequences or impacts of human activities on the environment
- The benefits derived from the resources that are managed on a sustainable basis.

SoR reports increase public awareness of environmental and development issues. Being informed, the public can buy into the principles of sustainable development and participate meaningfully in appropriate water management forums. People and organisations are empowered by the information through which they can improve their environment and quality of life for themselves and future generations.

THERE IS A NEED
TO KNOW ABOUT
THE HEALTH OF
OUR RIVERS.

2.3. PROVIDE HISTORICAL TRENDS

Trends in river health will become available through ongoing biomonitoring and reporting.

SoR reporting sets a point of reference against which future data and interpretations can be compared.

Figure 2 gives an example of how river health changes can be tracked over time and portrayed. For example River X was in the “good” river health category during “year n”, deteriorating over time, becoming fair in “year n+k”, while River Z improved during the same period. (The River Health Classification System is explained in section 6.5.)

FIGURE 2

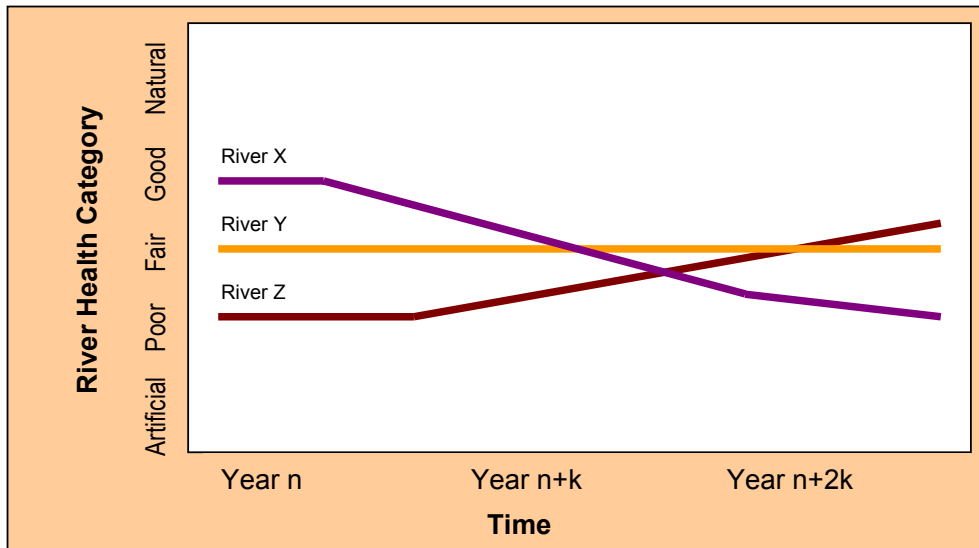


Figure 2. Temporal trends will become available through ongoing monitoring and reporting

2.4. AUDIT MANAGEMENT PERFORMANCE

SoR reporting sets a point of reference against which the effectiveness of management strategies in South Africa can be audited:

- How does the actual river health compare to the vision for a desired state?
- How effective have the management actions been in achieving the goals and objectives?
- Have the agencies responsible for monitoring and managing river ecosystems achieved their goals?
- Have recommended actions been implemented?

THE SUCCESSFUL
IMPLEMENTATION OF
RIVER MANAGEMENT
ACTIONS CAN BE
MONITORED

SoR reports will provide information to help ascertain whether the state of each monitored river has moved, through management intervention, toward the desired state. River Z (Figure 2) could be a typical example of where unacceptable deterioration of a river was prevented through having appropriate management actions in place on time. Through proper research, causes for deteriorating river health can be identified and management strategies adapted to respond appropriately.

Management strategies related to river health include the determinations of ecological reserves, water use licensing (water abstraction and discharging of treated effluent) in line with in-stream quality and quantity objectives, water releases from dams, forestry management such as maintenance of buffer zones and erosion control, eradication and control of alien invasive plants and rehabilitation of riparian zones after removal of such plants, etc. The Department of Water Affairs and Forestry will be responsible for conducting management strategy audits.

3. THE TARGET AUDIENCE AND THE REPORTING FORMAT

SOR REPORTING
CONVEYS
RIVER HEALTH
INFORMATION TO
AUDIENCES

The RHP aims to contribute to better understanding and management of river ecosystems. SoR reporting is the vehicle through which the necessary information is conveyed to the relevant target audiences.

3.1. WHO IS THE TARGET AUDIENCE?

In the Report Series no 6, potential target audiences for the biomonitoring results are listed (<http://www.csir.co.za/rhp/reports/reportseries6.html>). The audiences fall into the following broad groups:

- Environmental politicians (ministers and senior managers of relevant Departments of Central Government; MECs of Provincial Governments; Premiers of Provincial Governments; National and Provincial Environmental Councils)
- Resource Managers and Decision-Makers (Directors of Departments with environmental responsibility within National and Provincial Government; National and Provincial Parks Boards; Water Boards/Authorities; NGOs; Industry)
- Other stakeholders (communities, conservationists, schools, farmers, industries, scientists and the media)

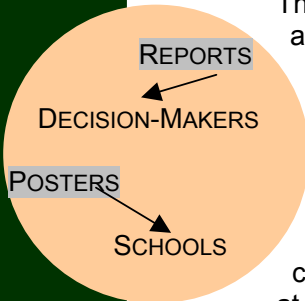
3.2. WHY SHOULD THE TARGET AUDIENCE BE DEFINED?

In order to select the product that is suitable for the audience it is necessary to decide who the end-user will be. Defining the target audience for each product should ensure that the message is pitched at the correct level.

The kind of information and the way in which it is portrayed would differ according to the audience of that specific product. A pamphlet aimed at politicians would differ from a poster for school children or a booklet for rural communities, and none of the above would contain the kinds of information that a scientist require for a report. Deciding on the correct product will ensure that the SoR message has maximum impact and that the reader derives maximum benefit from it.

If the message is understood, the reader will gain the confidence to constructively participate in debate regarding river health matters. This could be at home (spreading the word within the household or among friends) or while participating at a river forum meeting, for example.

When the developers of a SoR product plan to target a specific group, the kind of information, the way in which it is portrayed and the product itself should be adapted to fulfil this need in the best possible way.



In **summary**, the target audience should be defined to ensure that:

- The message has maximum impact
- The reader gains maximum benefit

Which can be achieved when:

- The product contains suitable information
- The message is pitched at the correct level
- The message is packaged in the most effective media for the target audience

4. THE SoR REPORTING BUDGET

MONEY
SHOULD NOT BE
A RESTRICTIVE
FACTOR

Where will the money come from to pay for the production of SoR products, e.g. a graphic artist and the printing?

To date, the national custodians of the RHP have provided seed money for the production of SoR reports in provinces. As the SoR reporting drive picks up in all the provinces, national funding could become a limitation and provinces should start to take over the funding responsibility. The situation should be monitored and alternatives explored in time, e.g. sponsorships by industry, municipalities and the private sector.

SoR reports (and posters to a lesser degree) are high-cost products. The cost of production should, however, be weighed against the product's impact. The extent to which a good product promotes positive changes in perceptions and actions in relation to our rivers is immeasurable.

5. THE REPORTING FORMAT

SoR REPORTS
ARE RELEVANT
AND ATTRACTIVE,
COMPREHENSIBLE
AND
EASY-TO-READ

The report or poster should contain the relevant information that would enable informed decision-making. It is, however, not only the abundance of available data that informs of the state of our river systems. (The contents of SoR reports are discussed in Chapter 6.) The successful continuation of the RHP depends to a large extent on the effective communication of river health to the relevant audiences. In this regard, the presentation, visual appearance and presence of graphics and photographs play an important role.

5.1. PRESENTATION

The way the information is presented plays a major role in successful communication. SoR reports compete for the busy manager's attention. The information should be presented in an attractive format that encourages reading and stimulates the desire for more information and knowledge. The reports and posters should be suitable for quick reference and complement the more comprehensive, supporting technical documents.

The number of managers and stakeholders that read the reports, understand and constructively use the information in the reports is one measure of the success of the documents. They should empower river stakeholders and managers to participate in discussions on water management in an informed and confident manner. This will only happen if the message is clear and easy to understand.

SoR reports are presented in an attractive, easy-to-read and easy-to-understand format that:

- Competes for the attention of the reader
- Is ideal for quick reference
- Stimulates the desire to know more about the subject

5.2. GRAPHICS AND PHOTOGRAPHS

“A PICTURE TELLS
A THOUSAND
WORDS”

The layout of a SoR reports ensures the overall appeal. Graphics and photographs should be used to enhance the SoR message. Ensure effortless interpretation of the graphical material and use elementary keys as far as possible. The use of graphics should not complicate the message or just fill space. Use photographs and other graphics relevant to the written message to improve the communication.

Obtain permission for the use of graphics and photographs and address copyright issues. Borrowing/using material from groups and individuals from outside of the river health networks has an advantage in that it sensitises a wider group of people to river health issues and the packaging of these issues in SoR products. Always acknowledge the contributions.

Ensure that photographs and graphics are of good quality. The resolution should be at least 300dpi when printed.

5.3. THE VISUAL APPEARANCE OF SoR REPORTS AND POSTERS

SOR REPORTS AND
POSTERS ARE
IDENTIFIABLE AS
RHP PRODUCTS

SoR reporting products should be attractive in order to capture the busy manager’s attention. A flagship publication will be distributed, thereby contributing towards an increased readership.

Although designed to catch the reader’s attention, SoR reports and posters **should always retain a RHP identity** (look and feel). The publication should reflect the image of the RHP in such a way that it is recognisable as a RHP product (Figure 3), e.g. by displaying the dark green band and dragonfly image (Figure 4) on the report cover could be a way of achieving this, while allowing for provincial individuality.

To ensure that a RHP identity is maintained the following minimum requirements for qualification as a RHP product should be adhered to:

- The RHP colours are: dark golden yellow (Pantone 141C or CMYK: 10, 30, 80, 0) and shades thereof, and dark green (Pantone 350C or CMYK: 80, 0, 90, 70) and shades thereof
- All publications should display the broad green band (Pantone 350C or CMYK: 80, 0, 90, 70) on the front cover
- All publications should display the RHP logo (Figure 4) on the front cover. It could either be the dragonfly or the diagrammatic logo
- The River Health Category colours are as follows: Natural = blue (CMYK: 100, 40, 0, 0); Good = green (CMYK: 100, 0, 100, 40); Fair = orange (CMYK: 0, 50, 100, 0); Poor = red (CMYK: 0, 100, 100, 20)

FIGURE 3



Figure 3. Examples of RHP products that reflect the RHP identity. The RHP colour scheme and dragonfly are prominent features.

FIGURE 4



Figure 4. Examples of the RHP dragonfly logo.

6. CONTENTS OF REPORT

SOR REPORTS SHOULD CONTAIN CERTAIN INFORMATION

The outline and information components that form the backbone of a SoR report are discussed in this chapter and are summarised in Figure 5. The relevant RHP report series should be consulted when the reporters are unfamiliar with certain concepts.

Some of the data that is mentioned in this chapter is, depending on the type of data, obtainable from GIS services (DWAF, DEAT or CSIR), StatsSA and WRC reports. Municipalities, libraries and local government officials are also sources of information. The Transvaal Museum and the SAIAB, amongst others, are valuable sources of photographic and other material.

The bulk of this chapter is dedicated to the content of SoR reports. The content of a poster is discussed in Section 6.11. The way in which a report or poster should be presented (reporting format), is addressed in Chapter 5.

FIGURE 5



Figure 5. Checklist for the main components of a typical SoR report. Reporting teams should also refer to published reports for guidance.

6.1. CONTEXT OF THE REPORT

REPORTS AND POSTERS SHOULD STATE THE DATA COLLECTION AND PUBLISHING DATES CLEARLY

There is usually a time lapse between the period of data gathering and date of report publishing. It is essential to state when the river surveys were conducted when reporting on the state of our rivers. The reader of a SoR product does not necessarily know the time period that the specific report or poster represents. This information should therefore be clearly stated. The data collection period would represent some time before the publishing date. If not clearly stated the reader might assume that the data collection and the publishing took place in the same year, which is seldom the case.

The date of publishing should appear on the cover or title page of the report and it should not be omitted on a poster, which often happens.

6.2. INTRODUCTION

INCLUDE ENOUGH INFORMATION TO GIVE THE READER THE NECESSARY BACKGROUND

Information that gives an overview of the study area, the main conclusions and the purpose of the report (i.e. why should I read this?) would guide the reader to gain a quick understanding of what to expect in a particular area and to give a perspective on the current state. How does the reporting fit into DEAT and DWAF objectives? The following has proved to be informative.

6.2.1. *Background*

Background information would help the first time reader to understand what SoR reporting, SoE reporting and the River Health Programme is about. Information on the following could be report specific and/or catchment specific:

- The teams involved (gathering data and reporting)
- The time period that the report represents, e.g. time when data was gathered.
- Interesting and relevant events prior to the reporting. This sketches the context within which the information was collected. The nature of the events can be political (new legislation) or environmental (floods or extensive droughts or veld fires).

6.3. INDICES USED

The River Health Programme is essentially a biomonitoring programme and reports on selected ecological indices. The criteria for using the specific indices in SoR reporting are in line with those used for SoE reporting. The criteria are that an indicator should be:

- Representative of the larger ecosystem
- Based on scientific testing and verification
- Practical to measure
- Able to be updated at regular intervals
- Responsive to changes in the environment related to human activities
- Able to show trends over time.

THE RHP IS A BIOMONITORING PROGRAMME THAT USES INDICATORS TO ASSESS THE HEALTH OF RIVERS

The following indices are mainly used by the RHP to assess the health of rivers:

- South African Scoring System (SASS5),
- Fish Assemblage Integrity Index (FAII),
- Riparian Vegetation Index (RVI) and
- Index of Habitat Integrity (IHI).

Detailed information on the indices can be obtained in the relevant reports (RHP report series) and on the RHP web page (www.csir.co.za/rhp/). Copies of the RHP report series are obtainable from DWAF (RQS) at the following address:

The Director
 Resource Quality Services
 Department of Water Affairs and Forestry
 Private Bag X313
 PRETORIA
 0001

Although the above indices form the backbone of SoR reporting, water quality and other indicators of particular importance to a specific region can be reported on as well.

6.4. THE RELEVANCE OF ECOREGIONS

SoR reporting collates and presents information at a level that is suitable for management interpretation and action.

DATA CAN BE
GROUPED
ACCORDING
TO
ECOREGIONS

When surveying the health of our river systems, all the data gathered within a specific area or catchment could fill hundreds of pages. All this data is captured on the rivers database and in technical reports (more on technical reports in section 7.3.4). SoR reporting groups the data obtained from several biomonitoring sites. This gives an overall or more global view of river health within a specific river reach or catchment.

The grouping of data within ecoregions could be a convenient way of presenting data within a region of ecological similarity. More so, because reference sites/conditions are also selected according to ecoregions.

Although a convenient way to group data, ecoregions are not the only way in which this can be done. For example, where the entire catchment or river reach falls within one level 2 ecoregion, other ways of grouping need to be explored. Grouping of data according to similar drivers or river uses could be more useful in some instances.

A CLASSIFICATION SYSTEM ENSURES THAT THE STATES OF RIVERS CAN BE COMPARED ON A TEMPORAL AND SECTORAL SCALE.

6.5. RIVER HEALTH CLASSIFICATION SYSTEM

Making use of a river health classification system ensures standardisation and therefore allows for comparison of the health data of several river systems. The river health indices are calibrated and results can be expressed as a specific river health category: natural, good, fair, poor or artificial. In Table 1 the ecological and management perspectives for each river health category are given.

Table 1. River Health Categories and the corresponding ecological and management perspectives.

TABLE 1

River Health Category	Ecological perspective	Management perspective
Natural N	No or negligible modification of in-stream and riparian habitats and biota.	Protected rivers; relatively untouched by human hands; no discharges or impoundments allowed.
Good G	Ecosystems essentially in good state; biodiversity largely intact.	Some human-related disturbance but mostly of low impact potential.
Fair F	A few sensitive species may be lost; lower abundances of biological populations are likely to occur, or sometimes, higher abundances of tolerant or opportunistic species occur.	Multiple disturbances associated with need for socio-economic development, e.g. impoundment, habitat modification and water quality degradation.
Poor P	Habitat diversity and availability have declined; mostly only tolerant species present; species present are often diseased; population dynamics have been disrupted (e.g. biota can no longer reproduce or alien species have invaded the ecosystem).	Often characterised by high human densities or extensive resource exploitation. Management intervention is needed to improve river health – e.g. to restore flow patterns, river habitats or water quality.
Artificial A	These systems may have water of good quality and are likely to be inhabited by a range of organisms. However, they have been transformed to such an extent that their habitat types, biological communities and ecosystem processes bears no or little resemblance to those that would occur under natural conditions.	Modified beyond rehabilitation to anything approaching a natural condition. Example: canalised rivers in urban environments.

6.6. THE DPSIR REPORTING FRAMEWORK

The national SoE report for South Africa uses the Driving Force-Pressure-State-Impact-Response (DPSIR) framework (Figures 6 and 7). The choice of a reporting framework is determined by among others, the report objectives, the type of institution, and the need to effectively satisfy user requirements. The framework helps to bring order and convergence to the structure and contents of SoE reporting products.

The DPSIR framework helps to explain what is causing environmental change (the pressures on the environment), how good or bad the conditions are (the current state and trends) and what we can and are doing about it (environmental management policies and actions in place). It also helps to identify the drivers (human influences and activities) and to understand the impacts (consequences for sustainability and human livelihoods).

SoR reporting adopted this DPSIR framework. It focuses on the present state and trends in river conditions, the driving forces and pressures on the rivers, and the policies and management actions that are and should be in place to manage South Africa’s river systems in order to achieve the desired states.

These concepts should be explained prior to the actual reporting on the present and desired states and management actions needed. The DPSIR components are presented for each river or river reach in the catchment, depending on the scale of reporting. The scale of reporting will be decided on during the scoping meeting (refer to section 7.3 and Figure 11).

PRESENT DATA IN SUCH A WAY THAT IT CAN BE COMPARED WITH OTHER REPORTS

FIGURE 6

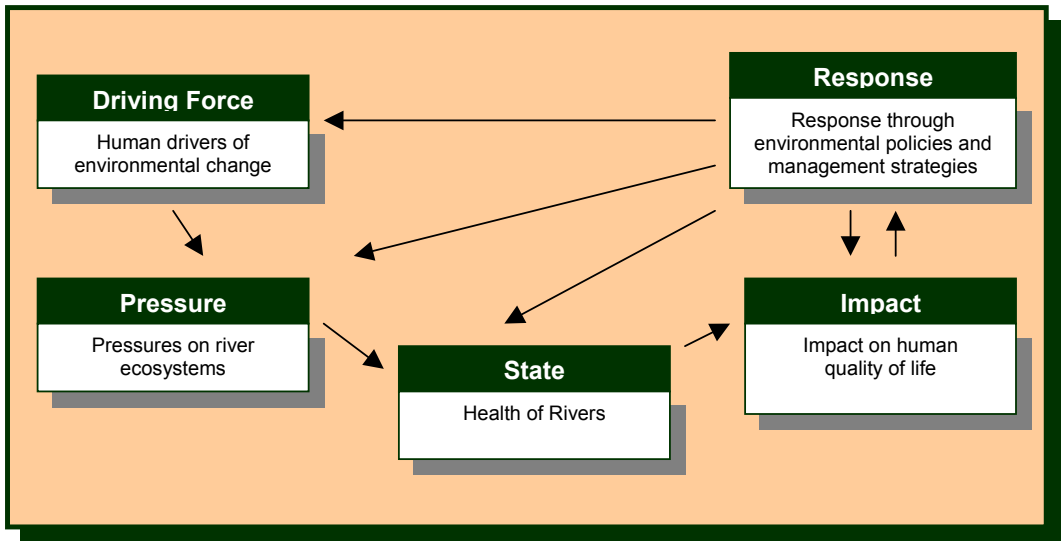


Figure 6. Schematic diagram of the DPSIR framework and its interactions (adapted after Smeets and Weterings, 1999).

FIGURE 7

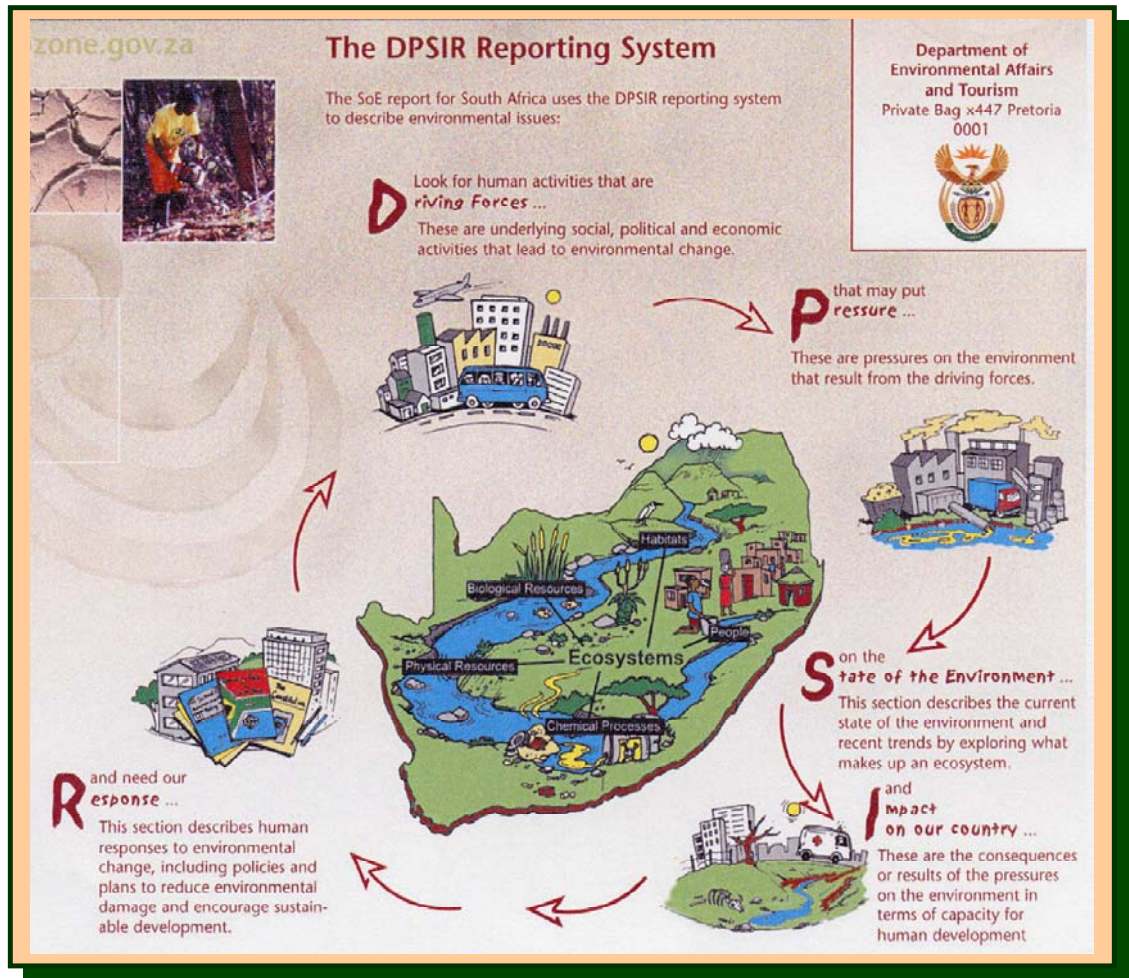


Figure 7. The DPSIR framework as presented in SoE reporting (<http://www.environment.gov.za/soer/resource.htm>).

6.6.1. Present Health (State)

The present health category of a site is the degree of modification between biomonitoring results obtained during a survey and that of a reference site or reference conditions. Reference conditions indicate the natural (pristine) state of rivers prior to human intervention. The present health is a reflection of the response of a river to all natural and human induced disturbances prior to a survey. In other words, a River Health Category gives an idea of how much the river has changed from its natural state. The River Health Classification System is discussed in Section 6.5.

River health data obtained from several biomonitoring sites could be combined or grouped, giving one assessment or reading for a section of a river. Any one of several parameters, depending on the river being reported on, could be used for grouping purposes (Figure 8), for example resource units, common drivers, ecoregions (refer to Section 6.4), geographic area, etc.

INDICATORS ARE USED TO CAPTURE AND PRESENT LARGE AMOUNTS OF INFORMATION

FIGURE 8

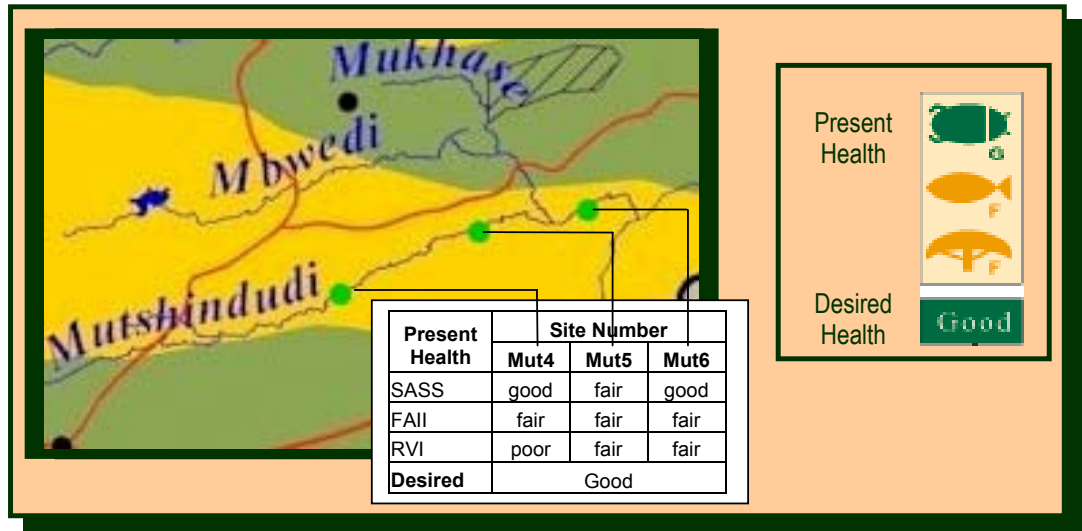


Figure 8. An example of how data from several biomonitoring points (green dots on map) could be grouped to give one overall reading (diagram on right hand side) for State-of-Rivers reporting purposes.

6.6.2. Pressures and driving forces

These refer to human influences and activities that cause environmental change. Population increases, together with the needs and activities of people, are examples of primary driving forces. Changes in production and consumption patterns exert pressures on the environment. For example: more people require more houses and food which leads to increased impacts on the riparian vegetation when trees are removed for firewood and building material.

The degree of environmental change is dependent on environmental conditions that may vary between areas.

6.6.3. Desired health

The desired health of a river is the anticipated health at which the river could be managed sustainably. It is based on sustainability and ecological needs. The level of protection of a river should ensure a state that is able to provide a desired range of benefits (with known but acceptable impacts) to stakeholders.

The following is taken into account:

- The ecological importance (biodiversity, rarity or uniqueness of habitats and biota),
- Ecological sensitivity (the ability to tolerate disturbances and to recover from certain impacts)
- The strategic importance for economic development of specific river ecosystems

HUMAN ACTIVITIES CAUSE ENVIRONMENTAL CHANGE

THE DESIRED HEALTH TAKES INTO ACCOUNT HUMAN, ECONOMIC AND ENVIRONMENTAL NEEDS

For SoR reporting purposes the reference conditions, the present state and the ecological importance and sensitivity of a river are also considered when suggesting a desired state.

Achieving progress towards desired states would guide development towards sustainability. The possible negative future impact will be minimised the sooner consensus on a desired health is reached and a river managed accordingly. A river is managed sustainably when it continues to deliver the expected goods and services over an infinite time period.

Although some changes in ecosystems are unavoidable, a balance should be reached between human and economic uses of water and other river based services and the need to maintain the biophysical systems that these services depend on.

6.6.4. Management Actions (Response)

In the DPSIR context *Management Actions* can also be called *Responses*. This section addresses the following:

- The management actions that should be in place in order to ensure sustainable development
- The management actions that should be in place to manage the consequences of unavoidable/unacceptable change
- The effectiveness of management actions in place
- How to co-ordinate responses for different causes
- How to co-ordinate responses of the government departments and other water management areas
- What else should be done?

Certain organisations or departments are responsible for specific management actions. For example, DWAF is responsible for determination of the ecological reserve, audit and control compliance with licence conditions and management of water releases from storage dams; Local Government for ensuring that sewage treatment plants adhere to operating standards; and DEAT for ensuring that an environmental impact assessment (EIA) is done before approval of a major development. More examples of actions that relate to the monitoring and management of river health are listed in the Adaptive Management Cycle section of the *State-of-Rivers report: The Letaba and Luvuvhu River Systems*.

MANAGEMENT
ACTIONS SHOULD
RESPOND TO
CHANGES IN THE
ENVIRONMENT.

6.7. OVERVIEW INFORMATION

6.7.1. *Terrain*

The terrain information should sketch a picture of what the study area looks like. It should also show or describe the natural features that drive the ecosystem processes. A topography map, obtainable from Geographic Information System (GIS) Services (government departments, the CSIR and the private sector provide GIS services), could be used. The following information should be included:

- The locality in relation to Southern Africa
- The river and its tributaries
- Where do the river and its tributaries rise
- The mountain ranges that form watersheds
- The topography (the altitudinal differences and relief such as valleys, plains, hills, steep slopes)

6.7.2. *Climate*

Climatic conditions vary. The following information should be included as it determines the nature of the unimpacted land cover which influences, amongst others, decisions on land-use activities such as the type of agriculture.

- Mean annual rainfall (e.g. the mountainous zone has a rainfall of 3 000 mm/year and the dry western region less than 100mm/year)
- Type of rain (e.g. thunderstorms during summer or soft winter rain)
- Evaporation patterns (e.g. 80% of evaporation occurs during dry months from June to August)
- Temperature patterns (e.g. temperatures range from a low average of 15°C in the upper catchment to a high average of 21°C in the low-lying areas)

6.7.3. *Land cover and land-use*

Dominant land-use activities and other concerns should be mentioned. Provide information on the following:

- Agriculture, irrigation, forestry, mining and industrial activities
- Natural areas of importance (not formally conserved)
- Conservation areas (formally conserved)
- Concerns around changes in natural conditions e.g. loss of natural habitat and increased generation of pollution and waste

- Ecoregion and biome information (if not a comprehensive section elsewhere)

6.7.4. *Population*

Population figures give a good indication of the pressures on natural resources. Figures of the following information should be included:

- The current population per area or catchment
- The variation in population between areas
- Population growth rates
- Employment (poverty and unemployment)
- The Human Development index (life expectancy, literacy and GGP)
- The percentage of households with reticulated water supply and sanitation systems; where the water comes from and what do those without it do?

6.7.5. *Economic profile*

Information of the activities on which the economy of the area is based should be included. Each sector's dependency on water or on the river directly should be discussed. Information on the following should be included:

- The Gross Geographic Product (GGP)
- Water use figures
- The industries, mining, forestry, agriculture products, tourism etc.
- The occurrence of subsistence farming
- The annual household incomes and in which sectors and geographical areas these incomes are earned

6.7.6. *Development priorities*

Certain industries or infrastructure improvements can be targeted as development priorities. Discussions on what led to such decisions and the possible outcomes of such decisions and developments could be useful and informative. Answers to the following questions should be given:

- What land-use, industrial or commercial developments are likely to occur?
- Would certain developments, e.g. population growth, increase the demand for water and by how much?
- Would the demands on the resource exceed water availability?
- Would improved operating techniques alleviate problems that exist or may arise?
- Are any new water supply schemes or wastewater treatment schemes being planned or existing ones being upgraded?

6.8. CATCHMENT INFORMATION

Depending on how the report is structured, this section deals with the secondary, tertiary or the quaternary catchment specific data. Much of this information can be extracted from a GIS.

The following catchment data should be included:

- The catchment or sub-catchment area (in square kilometres)
- The boundaries of the catchment or sub-catchment (e.g. the Long Mountain range in the east and the Blue Ocean in the West)
- The mean annual precipitation (e.g. 600mm)
- The mean annual evaporation (e.g. 1 000mm)
- The mean annual runoff (e.g. the mean annual runoff is 500 million cubic metres, ranging from 100 million cubic metres in area x to 1000 million cubic metres in area y.)
- The dams within a catchment and their volumes and sizes (e.g. Hamba Dam, maximum capacity of 50 million cubic metres, surface area 10 square kilometres)
- Related statistics (e.g. 20% of mean annual precipitation (MAP) in wet mountainous zone, 60% of mean annual runoff (MAR) in catchment derived from 10% of the area)
- Mention if there are inter or intra basin transfer schemes

River specific information should include:

- The river tributaries and their perennial or seasonal status
- Mountain ranges or other area where river rises
- Mention countries that share a river, where applicable

INCLUDE
CATCHMENT AND
RIVER SPECIFIC
INFORMATION

6.9. SUMMARY

A summary of the data and information presented in the SoR report should be included. The purpose of the summary is to enable a quick glimpse of the most important information within the document. It also permits comparison with other river systems. For SoR reporting this could be achieved using a schematic diagram and with written text.

THE SUMMARY DIAGRAM WAS DEVELOPED IN RESPONSE TO STAKEHOLDER DEMAND

6.9.1. Schematic Summary Diagram

A schematic summary diagram (Figure 9) with comparative health states over space serves as a quick reference and gives an overview of the health of rivers within a catchment.

FIGURE 9

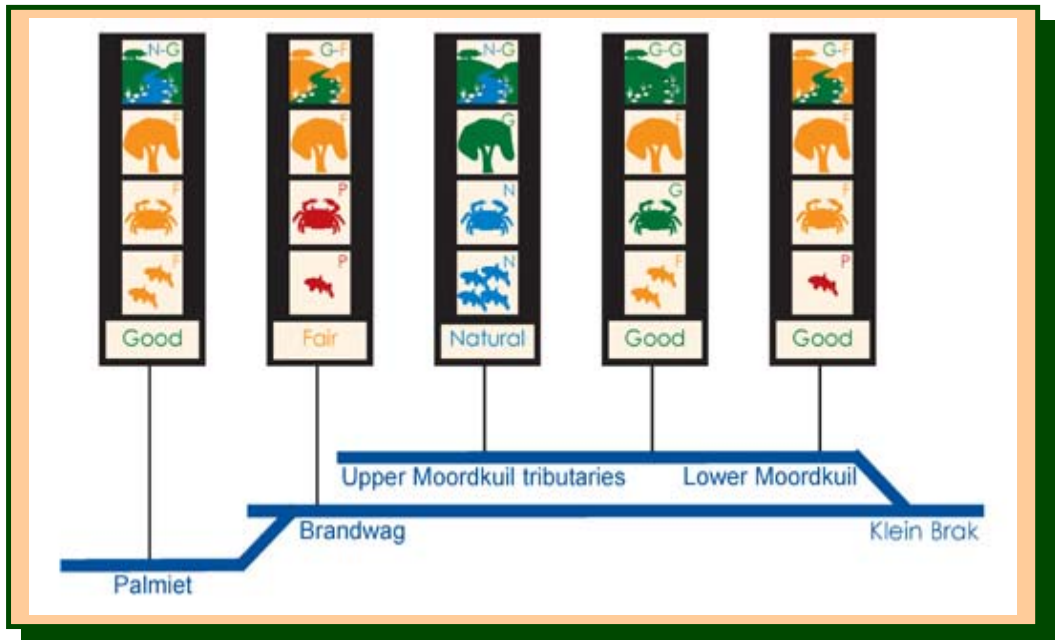


Figure 9. The schematic river health summary diagram. The blue lines represent the river and tributaries while the icons indicate the health categories of each river reach.

6.9.2. Summary Text

Considering that the SoR report already contains data in a summarised or condensed form, the content of the written summary should be carefully selected. Keep in mind that some readers would start with the summary and others might read the summary only.

Give a short overview of the river catchments: What is the ecological importance and sensitivity of the study area. The main purpose of the summary would be to highlight the most important aspects of the report and to encourage further reading. Information on the drivers that impact the most on river health and how

land-use within the catchment affects the river, could serve this objective. Mention the most important management actions needed.

6.10. ADDITIONAL INFORMATION

Additional information that has added value to previous SoR reports includes the following:

INCLUDE
ADDITIONAL
INFORMATION
IF IT ADDS
VALUE

- A reference list is useful to those that, after reading the report, would like to find out more about specific topics. The list would include the available technical reports.
- Lists of indigenous and alien fish species that occur in the study area. The list should be expanded to include trees, other plants within the riparian zone and frogs, etc. An indication of indigenous riparian flora and fauna, endemic species and the presence of alien invasive species could add value. This would however depend on the space available (see Section 7.4.11).
- A glossary explaining unfamiliar or difficult terms. The golden rule is to explain more, rather than less.
- Address relevant issues such as the link between development priorities, human activities and the impact on the environment. Suggest activities that fit into the SoE reporting framework on what individuals could do to improve their environment.
- The RHP web address (<http://www.csir.co.za/rhp/>).
- A contact address where reports could be obtained as well as a contact address of the relevant organisation (e.g. Provincial DWAF office).
- Other contacts such as the custodians and representatives of the relevant provinces.
- Acknowledgements of contributors and partners. Acknowledge the contribution of organisations by printing their logos on the back cover of the report and on the poster.

6.11. THE POSTER

Much of the above is only relevant to SoR reports. Not all the information could or should be captured on posters. Posters accommodate much less information when compared to reports. Posters should capture the essential message relevant to the particular audience. After careful selection of the text and adding explanatory graphics and photographs, there is not much, if any, space left for additional information.

The content of a poster would depend on the specific target audience. The following could, without excluding others, be addressed in a typical RHP poster:

- The reason for the poster. Is the river system of significant ecological importance?
- The time period represented by the data displayed
- Background information on the RHP
- An explanation of what river health is
- Catchment information of interest that would add value
- The present state of the rivers
- What is impacting on the rivers
- The management actions needed and the desired health to work towards
- What **you** can do
- An explanation of the indicators of river health and what they measure
- An explanation of the River Health Categories
- Other information e.g. biodiversity issues (endangered or loss of species)
- The RHP web address (<http://www.csir.co.za/rhp/>).
- A contact address where posters could be obtained as well as a contact address of the relevant organisation (e.g. Provincial DWAF office).
- Logos of participating organisations and partners.

7. DEVELOPMENT OF A STATE-OF-RIVERS REPORT OR POSTER – THE PROCESS

THE
SUCCESSFUL
COMPLETION OF A
REPORT REQUIRES
PERSEVERANCE

The process as described in this chapter would assist a reporting team to compile a SoR report or poster and to do so with confidence. However, the way in which the actual reporting takes place will depend largely on the reporting team itself. In some instances it would work best if one person takes responsibility and together with a small core group taps into the knowledge of the bigger group. For other teams a participatory process would work best.

Building SoR reporting capacity within provinces is crucial. The national project co-ordinator/manager should probably spend a bit of time pondering the team make-up and deciding where and how to use their individual strengths. Strengths in certain individuals or sub-groups may also develop over time and the project co-ordinator should be sensitive to this in order to leverage benefits and opportunities for capacity building in the SoR product development process. Building of capacity has financial implications and the project manager should be sensitive to this issue.

The process for the development of a report is described in this chapter. The development of a poster, although possibly less complex, would follow more or less the same steps. Where the development of a report is mentioned while discussing the different steps it does not necessarily exclude or include the development of a poster.

7.1. PROCESS OVERVIEW

This chapter explains the tasks to be completed as well as individual and team responsibilities. The typical SoR reporting process is described in Figures 10 and 11. No specific duration is indicated as it may vary according to the type of product, the size of the project team, the commitment to the reporting process and other project demands. Teams who completed SoR reports said that they knew a project like this would be a lot of work, but that they totally underestimated the time it takes to complete the final stages. Guidelines regarding the time frames and duration of a reporting cycle can be found in Tables 2 & 3 for reports and posters respectively.

FIGURE 10

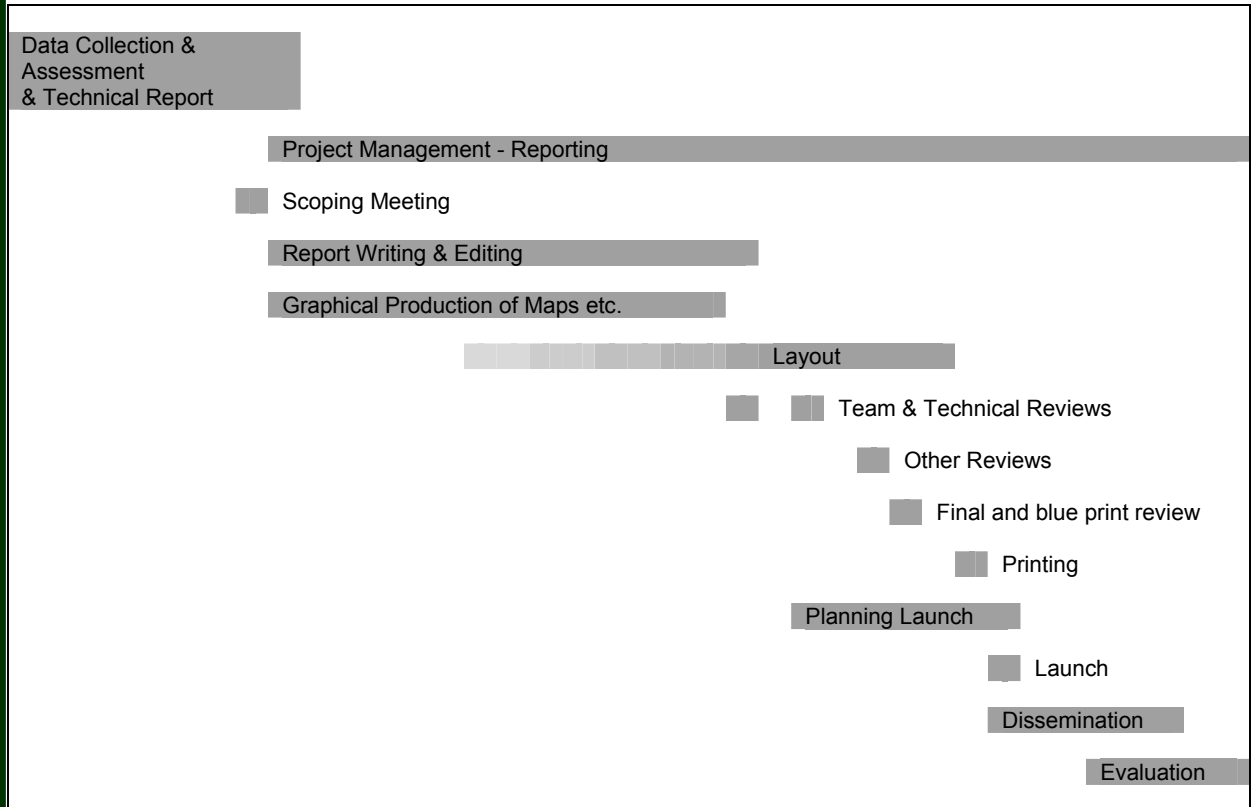


Figure 10. Diagram of the generic SoR reporting process. Tasks and key events are indicated and discussed in detail in the relevant sections.

Tasks are arranged chronologically on the y-axis and the timeline follows the x-axis. The Data Collection & Assessment task does not form part of the reporting process. It is listed to indicate the dependency on the completion or near completion of this task in relation to the reporting process.

FIGURE 11

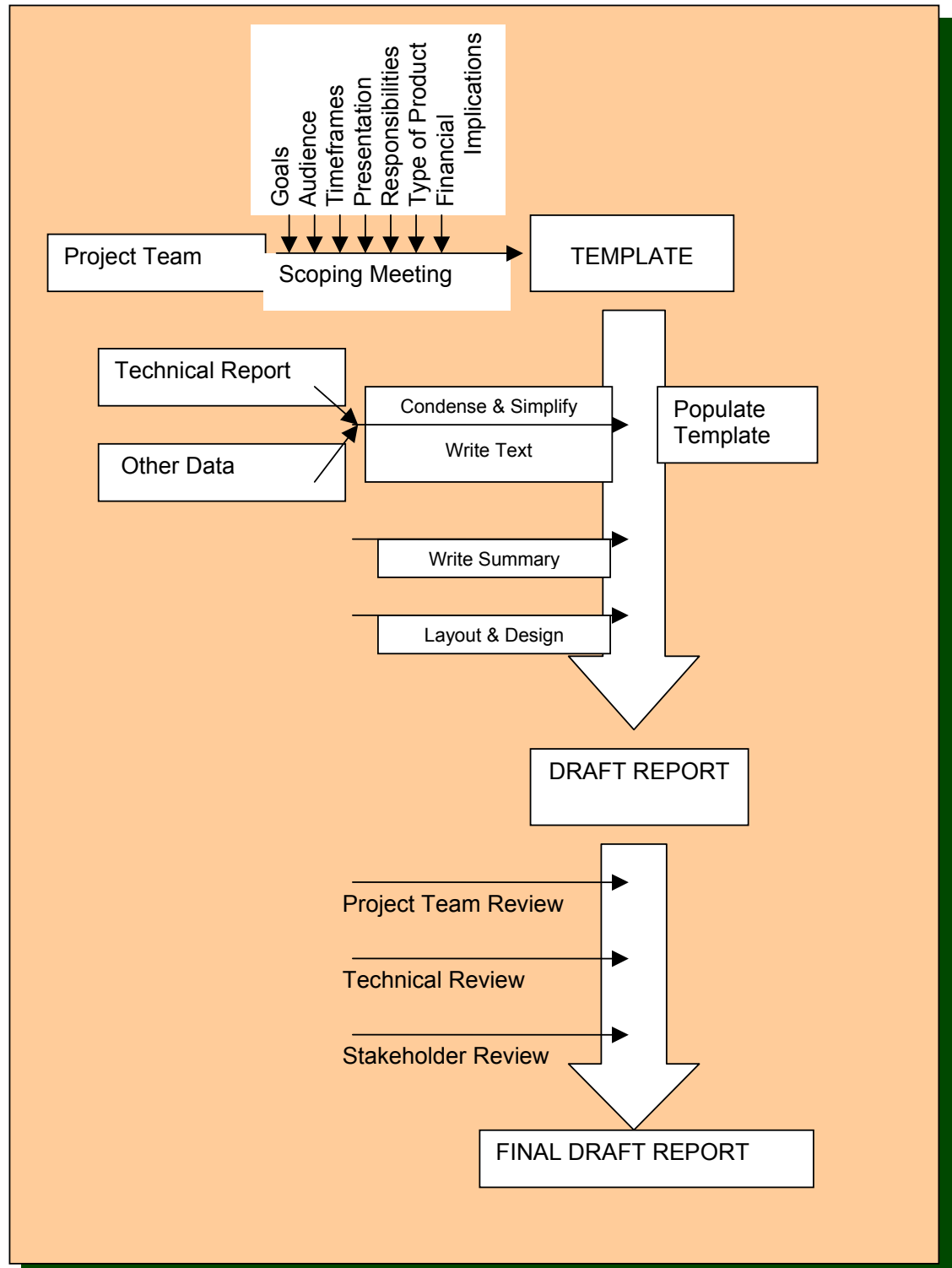


Figure 11. A simplified version of the SoR reporting process. The process diagram should be used together with the related text and other figures and tables.

INVOLVING
KEY PLAYERS IN THE
REPORTING PROCESS
ENSURES BUY-IN AND
CO-OWNERSHIP OF
THE PROCESS

7.2. THE SoR REPORTING TEAM

The provincial implementation team (PIT) members, the national SoR reporting team and representatives of all participatory organisations such as government departments (e.g. DWAF and DEAT), Water Boards, universities, and conservation bodies (e.g. National Parks), should attend the scoping meeting. Stakeholders and interested and affected parties (I&AP) could also be involved. The involvement of a broader group would improve the chances that the end product aligns with expectations.

The team that participates in the compiling of a report or poster would typically consist of members from all the organisations and groups that attended the scoping meeting. The advantages of involving a network of partners and the involvement of the national SoR reporting team are discussed in sections 7.2.1 and 7.2.2 respectively. Responsibilities of the team members are discussed in section 7.6.

7.2.1. *Partnerships*

There are advantages to involving a network of partners and co-workers in the reporting process. A broader team, where as many institutions and organisations as possible are involved will, not only create a sense of ownership and provide a bigger pool of knowledge to tap from, but also fast track:

- The buy-in into SoR reporting
- The buy-in into biomonitoring in general
- The diffusion of SoR reporting knowledge (capacity building)
- The sharing of river health information

7.2.2. *The national reporting team*

Until such time that the reporting teams are able to take over all SoR reporting responsibilities, it is advised that at least one of the national SoR reporting team members be included to ensure:

- Alignment with national State of Environment reporting
- Alignment amongst SoR reporting initiatives in the provinces
- Knowledge transfer (between products and provinces)
- Continuous improvement of SoR reporting products (read more about the evaluation process and outcomes in section 11.2.1)

7.3. SCOPING MEETING AND CONCEPT FORMULATION

SHARE IDEAS,
REACH CONSENSUS
ON THE GOALS AND
THE AUDIENCE AND
DRAFT A CONCEPT
TEMPLATE

The scoping meeting is the first meeting where everyone that will be involved, in one way or another, in the production of a specific report or poster comes together to discuss the way forward. The scoping meeting provides the opportunity to share ideas and to make decisions. The end product of the meeting should be a draft template or a rough layout of the report or poster and what it should contain.

During the first meeting the following should be addressed:

- What are the goals that must be achieved by the report or poster?
- Who is the target audience?
- What type of product would be suitable for the target audience and are there preferences on the portrayal of the information, e.g. a poster (A1 or A0) or a report (number of pages?)
- What are the timeframes for completion of the product?
- What are the financial implications of producing a report or poster? What portion of the cost is carried by national custodians and what portion by local stakeholders?
- How will the responsibilities between project team members be divided, if and where applicable?

There is also content information that should be sorted out:

- What information is available?
- Is the available information adequate?
- How should the indices be presented, in the absence of a standard set of icons?

The way in which data and material will be presented within a report or poster should also be decided on. Some teams will have a strong idea of the way in which “their information” should be portrayed and how “their product” should look. Others would gladly leave that decision to the layout artist. Nevertheless, this should be discussed at the onset of the project to strengthen the sense of ownership and to ensure ongoing buy-in from all the team members.

7.3.1. *The end product: A Report or a Poster?*

How does the reporting team decide on the format of the product? The decision on whether a SoR report or poster should be produced depends on:

- The goal the team wants to achieve
- The specific need that exists
- The audience that should be reached with the particular product
- The budget available
- Data availability

SELECT A
PRODUCT THAT
WOULD ADDRESS
A SPECIFIC SET
OF NEEDS

Defining the end-user will ensure that the product is pitched at the correct level. A poster would be more suitable for schools and for general awareness creation, whereas a report would contain much more information, and would be more suitable for resource managers and decision-makers. Depending on the way it is presented, a report could be equally suitable for school children as for the public. Likewise, posters may fit the requirements of decision-makers and managers. Read more about the target audience in Chapter 3.

7.3.2. *Draft a template*

How will the available information (as described in Chapter 6) be grouped and presented? This will largely determine the success of the report.

GROUP
AND PRESENT
INFORMATION
TO COMMUNICATE
THE MESSAGE
EFFECTIVELY

The information should be grouped in such a way that it facilitates good communication to the reader and thus a better understanding of the issues within the particular area. It is assumed that every individual on the team has some knowledge of the study area. The team should reach consensus regarding the organisation of the information.

The next three steps guide the reporting team to draft the template:

- Draw up a Table of Contents (TOC). (Revisit Chapter 6 if unsure of the type of information that should be presented.)
- Ensure a logical story line that is prevalent throughout the report. All the issues that should be communicated should be addressed.
- Add detail to the TOC. Allocate page numbers to each section (refer to section 7.4.11)

The design of a report template early in the process has the following benefits:

- The reporting team focuses on the report as an end product
- Buy-in from all team members regarding the presentation and grouping of information
- Differences between team members can be addressed and agreement can be reached. (Changes to the reporting format at a late stage would have cost implications.)
- It serves as a reminder throughout the reporting process of the way information should be portrayed
- It sets page limits to sections (The amount of information could be overwhelming and it is often easier to include another page than to shorten the text. Be careful not to give in to this urge unless there is a very good reason!)
- Cost estimates can be obtained for the layout and printing of the report or poster.

Figure 12 gives an example of what the report template could look like. Published SoR reports could also be used as guides. However, the target audience and specific needs could differ from those addressed in these reports, requiring a fresh approach.

The drafting of a report template does not imply that the template is now fixed and that no new ideas can be accommodated. Such changes should, however,

be done with care and good reason especially if it would lead to more pages (see section 7.4.8 where adapting of the concept template are discussed). When changes to the template are suggested, the report should be viewed holistically and the consequences weighed.

FIGURE 12

Introductory pages (RHP background & reporting concepts) p 1, 2, 3 & 4	Study Area Overview (Land-use, Economic profile, etc.) p 5 & 6	Summary Diagram p 7 & 8
Summary Text p 9 & 10	River A General information p 11 & 12	River A Present Health, Drivers, etc. (DPSIR) p 13 & 14
Management Actions p 15 & 16	Species & Reading p 17 & 18	Glossary p 19 & 20

Figure 12. The reporting template example.

Try to stick to the template once it has been decided on. The template portrays the initial ideas of the reporting team before they became caught up in detail. The inner pages of the report should be in multiples of four (see section 7.4.11).

7.3.3. *Data collection and assessment*

By the time that the concept for a SoR report or poster is formulated, the biomonitoring data collection is normally completed. If not, it should be done as soon as possible. Outstanding seasonal data could have an influence on the time frames (see Chapter 10).

The data evaluation and interpretation, if not completed, should be done in the early stages of report writing. The ways in which the data sheets are combined to provide a holistic presentation of information are discussed in section 7.4.2.

Other data that is to be included in the report or poster, as discussed in Chapter 6, should be obtained from the relevant sources.

7.3.4. *Technical report*

Once the river surveys are completed, the data entered into the National Rivers Database and a technical report compiled, work on a SoR report or poster can start.

A technical report that is ready by the time that a SoR report or poster is created, guarantees that a **quality check** was done on all data presented. During compilation of the technical report all information would have been thoroughly examined, gaps identified and filled and data checked for accuracy, rigour and comprehensiveness.

Without a technical report, the data sheets and expert knowledge are the only sources from which information can be drawn. Although the end product may be similar, the time spent compiling the SoR report without the advantage of a technical report could escalate. The graphic design component also becomes more expensive, since this stage is then used to review the technical data.

Data relevant to the SoR report can be extracted from the technical report and interesting facts could be added. In short, the advantages of having a technical report by the time of drafting a SoR report are:

- The availability of a source of detailed information
- Easy access to data
- Scientific rigour
- Issues are debated
- Gaps are identified
- No separate paper trail necessary
- Cost Savings
- The technical report can be referenced in the SoR report

GATHER AND ASSESS ANY OUTSTANDING DATA

HAVING ALL THE DATA HANDS-ON WILL SHORTEN THE TIME NEEDED TO COMPLETE A SOR REPORT OR POSTER.

7.4. POPULATE REPORT OR POSTER TEMPLATE

According to the initial concept design, the poster or report can now be completed. The team:

- Knows who the target audience is
- Has decided on the end product and what it looks like
- Has drafted the template during the scoping meeting
- Is ready to populate the poster or report

The team then uses the reporting template as guidance and decides what information is going to be portrayed in the report. A poster has much less space for text and the decision on what to include could be tough (refer to section 6.11).

Table 2 and Table 3 (Chapter 10) represents the steps with timeframes required for the development of SoR reports and posters respectively.

7.4.1. *Writing the text*

The relevant text should be written for each section. Each team member would get an indication from the project manager or editor on the length of text required. This will be in line with the agreed space that is put aside for each section according to the draft template, allowing for maps, photographs and other graphics. The type of information will be according to the template drafted during the scoping meeting (see sections 7.3 and 7.3.2).

The report writing could be done with the team participating as a group or each team member could take responsibility for a specific section. To delegate the report writing in full to the editor, with team members providing the necessary data, is also a possibility. The project manager should build on the strengths and talents of the team members, allowing as much capacity building as possible taking cognisance of the budget (also refer to introductory paragraphs of Chapter 7).

Always keep the specific target audience in mind when writing the text. Never try to impress the audience with what you know. This is not a technical report. Refer to section 7.4.3 for the appropriate language that should be used in the report.

7.4.2. *Condense and Simplify Information*

A poster has limited space and a report should be of a reasonable length. Therefore, the data should be condensed. The information portrayed should give an overview of issues within the study area. The message should be informative, yet interesting and easy to understand.

The challenge lies with doing it in such a way that it:

- Is suitable for the target audience
- Keeps the interest of the reader
- Encourages the reading process
- Stimulates the desire to gain more knowledge

SELECT THE SPECIFIC INFORMATION THAT WILL BE USED TO POPULATE THE REPORT OR POSTER

WRITE THE TEXT ACCORDING TO THE AUDIENCES' NEEDS

PRESENT THE ISSUES IN AN INTERESTING AND EASY-TO-UNDERSTAND WAY

SELECT
FOCUSSED AND
SPECIFIC
INFORMATION

Do not attempt to report on all the issues. Select those with most impact in a certain area. Criteria could be:

- Whether it is of regional or national importance;
- The severity of the impact;
- Whether it has political implications;
- Whether it would be meaningful to the readers of the product;
- Whether or not the reader is likely to respond to one or more of the issues/messages portrayed.

Data and index values that would otherwise be difficult to understand by someone without the necessary background should be simplified into graphical formats.

7.4.3. *Language use*

CATER
FOR THOSE
WITH A LIMITED
UNDERSTANDING
OF THE ENGLISH
LANGUAGE

South Africa is a language-diverse country. Reaching the less literate communities in their mother tongue would always be the best form of communication. However, because of the extra costs involved, publishing all the reports in all the relevant languages is currently not possible.

To ensure maximum understanding it is advised that the English language is used at a grade 10 level. This makes sense when considering that English is often the 3rd, or even 4th, language of the end user. It would also have the added benefit that SoR reports would be intellectually within reach of high school children.

Wherever possible, it is advised that shortened publications with issues directly targeting specific audiences be produced in the relevant regional languages.

7.4.4. *The paper (electronic) trail*

THE
REPORTING TEAM
SHOULD BE ABLE
TO BACKUP
ANYTHING THAT IS
REPORTED ON

Since the information in the final product would be of a condensed nature, it is important to keep a paper or electronic trail of all data that are used.

Questions that might arise at a later stage could then be answered and the team would be able to justify any decisions or interpretations (e.g. classification) that were made.

References of other reports that were used should be kept.

7.4.5. *Uncover and debate deeper issues*

When reporting on the state of our rivers, certain statements are justly made. This forms part of the value that is added through the reporting process.

Justify statements by giving the necessary rationale. Frequently test statements by asking “How?” and “Why?”. A statement when presented with a good motivation adds much more value. The reader should be able to understand the conclusions that were reached. Do not hesitate to uncover deeper issues. Test statements by asking and answering the questions: “Why?” and “So What?”.

Examples of questions related to development priorities are listed in section 6.7.6. The list should be expanded to cover all sections of the report. Questions could include the following:

- Why is the present health of a river section poor?
- Why is the desired state fair and not good?
- What does management plan to do about it and what management actions should be in place to achieve this?
- How can the situation be improved?
- How will decisions influence river health?
- Will decisions ensure the creation of job opportunities and will this have an effect on river health?

DEBATE
ISSUES BY
ASKING
WHY?

7.4.6. *The visual presentation*

A combination of maps, text, charts (to show trends over time), diagrams, photographs (to tell a story or convey a message) and text boxes (to highlight issues) would ensure a visually interesting report. Avoid producing a report or poster that has too much text; no or too little white space; complicated graphics and unrelated photographs.

The following could be used as guidance to user-friendly presentation:

- Text font and size that is easy to read. The font size would depend on the type of font used, e.g. font size Arial point 9 and Times New Roman point 10 is becoming a bit small. This document is written in Arial point 11. The overall goal would be that the text font type and size should not tire the reader, be easy to read and not be too small. Do not use more than two font types.
- Enough white space (about 30% of total page coverage, depending of what else is on the pages) will prevent a document from becoming too busy.
- Explanatory graphics and photographs could replace text, preventing the report from becoming boring. Graphics such as maps should not include too much detail. Simplify the information. Photographs should be of good quality – at least 300dpi.

A report that is too crowded could discourage a busy person, who might put it aside till he/she has time to read it, which might be never.

BALANCE TEXT,
DIAGRAMMATIC
MATERIAL AND
WHITE SPACE

7.4.7. *Editing*

The final decision on the selection of data and the way in which it will be portrayed in the final product could be either the responsibility of the editor or a joint responsibility of the project team. Within the visual appearance (look and feel) constraints (Chapter 5) and without excluding certain components that previous report evaluations proved to be useful (Chapter 6) or SoE reporting requirements (Chapter 1.3), there is relative freedom regarding the product itself.

THE FINAL
RESPONSIBILITY
LIES WITH THE
EDITOR

Where consensus regarding certain issues cannot be reached, it is the responsibility of the editor to make the final decision. In such a case, it is advised that the editor, when inexperienced with SoR reporting and in doubt, consult the national SoR reporting team. They might not always know the answer but a feasible solution might be reached.

7.4.8. *Check and adapt/adjust the concept template*

The initial template as drafted during the scoping meeting might turn out not to be suitable. While populating the template, the project team might become aware of the fact that they initially chose the wrong concept. It could be that their data would be better displayed for the particular audience in another format.

In such an unlikely event, the template should be adapted as soon as possible, at least before the design stage starts. The decision to change the template should be made as soon as possible after consultation with all parties involved. Depending on the extent of the suggested changes, the decision could be made amongst the core reporting team or it could be necessary to repeat the scoping meeting and design a template from scratch. The latter would be most unlikely.

The reporting team should, however, make sure that changes to the template are crucial, that they would lead to improved reporting and that the result will not be a lengthy report that would influence budget targets.

7.4.9. *Writing the Summary*

The summary diagram (Figure 9) is a diagrammatic presentation of the health of a river with its tributaries. The summary diagram is a quick and neat way of getting an overview of the present state of rivers as well as the deviation from the desired state. The summary diagram concept was developed at the request of the RHP stakeholders.

The summary diagram is a way of summarising river health information with the absolute minimum detail. According to the length and changes in the river, one or more sets of icons which indicate the health are linked to a specific section of the river. One set of icons would e.g. be used for the upper reaches, another set below a confluence, and one for the lower reaches.

Apart from having the summary in diagram form, other main issues should be addressed in a written summary as well. It could include the most important issues within catchments, the drivers impacting most on the river system, what should change and what could be done about it, the management actions needed, etc. Trends that become evident in the summary diagram should be explained (see Uncover and debate deeper issues: section 7.4.5).

7.4.10. *Desktop Publishing*

The report layout (graphic design) could either be contracted out or someone with the necessary skills could become a project team member from the start. Both have advantages.

ADAPT THE
CONCEPT TEMPLATE
AS SOON AS POSSIBLE
IF NECESSARY

SUMMARY DIAGRAM
PLUS
WRITTEN SUMMARY –
THE ONE SHOULD
NOT EXCLUDE THE
OTHER

THE GRAPHICS DESIGN IS AN IMPORTANT COMPONENT OF THE SOR REPORTING PROCESS

The advantages of having a layout artist as a team member would be the following:

- The project team would have more control over the end product
- The layout could start early in the process
- The project team's sentiments and product specifications would be known
- It would eliminate the project manager or editor from being a spokesperson between the designer and the project team.

It is not always easy to convey the project team's needs to the layout artist and to have the job executed according to the specifications, as graphic designers have, rightfully, their own ideas.

Having someone with desktop publishing skills on the project team would not always be possible. In such instances, the services of a professional graphic designer should be acquired.

When choosing a graphic designer the route to follow would be to discuss the project and product with the possible candidates. A good time to approach the graphic designer would be when the report writing is nearly completed and the concept template adapted, if it was necessary.

THE PRODUCT SPECIFICATIONS SHOULD BE CLEAR

It is important that the potential graphics designers understand that changes can be made during the review process. Although they would mainly be text changes, they could include design changes if the terms of reference were not properly conveyed or adhered to.

The product specification (terms of reference) on which the quotation will be given should include the following information:

- Whether the design will be for a report (how many pages?) or a poster (A1 or A0) and the look and feel the report or poster should portray
- How many graphics and photographs will be included? In what format will it be supplied (previous reports or posters could be used as examples)? Will the designer have to create or redraw some of the graphics? Will the graphics designer be allowed to use some of his/her own material? Check the possibility of the same material being used in other published material.
- The end product that the designer will supply e.g. final product on Compact Disk ready for printing. Will the designer coordinate the printing as well? This could have cost implications.
- The number of proofs that are included in the quotation
- The hourly rate charged for any changes to the document
- Timeframes

When the graphics designer takes responsibility for the printing, the type of paper and thickness of the inner and cover pages should be specified. Additional printing information is provided in Chapter 8.

The following criteria could be used to choose a graphics designer (in no particular order):

- The quoted price: Graphics designing is an expensive service.

- Track record: Will the product be of good quality?
- Professionalism: Work relations are important.
- Availability: Will the product be delivered on time?
- Compatibility: Graphics designers have specific styles and specialities and these should be compatible with the RHP identity (see chapter 5.3).

7.4.11. *Practical Design Issues*

Knowledge regarding certain design issues can only be gained while working closely with a graphics designer during the production of a report or poster. It is advised that each reporting team start their own list and exchange this knowledge between reporting teams. Some of the national reporting team's experience is shared below:

SOME
KNOW-HOW CAN
ONLY BE GAINED
THROUGH
EXPERIENCE

- The number of inner pages within a document should be in multiples of four. If they are not, the extra pages will appear as blank ones at the back. They are paid for, even when not printed, so make use of them.
- Avoid the use of hyphens for breaking words across lines where possible. It is difficult to read too many hyphens in consecutive rows and it is not pleasing on the eye.
- Digital printing has the advantage that no positives are required. Make sure that printing companies that make use of digital printing do not charge for positives.
- A chromalin (litho printing) or an iris proof, which gives 98% accuracy, can be requested to check colours.

7.5. REVIEWING AND FINALISING THE PRODUCT

The draft report or poster is submitted through several review processes. The review stage within the reporting process should be debated amongst the project team members and the advantages and disadvantages weighed.

Having as much of the review processes done before going into the layout stage would save on design costs. This saving on design cost is the single biggest advantage. A disadvantage is that the reviewers do not get a good idea of what the end product will look like and would not get the opportunity to pick up any design faults e.g. wrong town locations on maps or wrong icon colour codes. It is becoming increasingly evident that it is difficult to try to accommodate the entire review process before going into the layout phase.

Having a draft copy ready for each of the reviewers, instead of circulating one copy, is convenient and saves time. When contrasting views are received, the editor should consult the review panel, the project team or independent experts, depending of the type of problem, if he/she is not able to come to a decision.

It is advised that all the changes coming out of each review process be made before the report or poster is subjected to the next round of reviews.

REPORT REVIEWS
ENSURE SCIENTIFIC
RIGOUR AND
STAKEHOLDER
SATISFACTION

7.5.1. *Review Process*

Four report reviewing steps are necessary:

1. First, an internal review of all the data to be presented in the final report is done. The rationale is to check for gaps and that a true reflection of what is happening in the study area are portrayed.
2. The second review involves external reviewers that were not involved in the report writing. It would typically include experts in the relevant fields as well as those with a good overall knowledge of the area.
3. The stakeholders check for political blunders. It is advised that prominent or obviously sensitive issues are discussed with the relevant parties in advance. The national RHP custodians are strong supporters of SoR reporting and are invited to partake in the final review.
4. The blueprint review is conducted by the editor/project manager and layout artist. Details of the purpose of this review are discussed in Chapter 8.

THE
PROJECT TEAM,
EXTERNAL EXPERTS,
STAKEHOLDERS AND
NATIONAL CUSTODIANS
REVIEW THE
PRODUCT

7.5.2. *Finalising the product*

All the review outcomes are consolidated and the necessary changes made on a master copy. (At this stage, if major changes were suggested the editor might ask the reporting team to do a final check.) The layout artist makes the changes according to the changes on the master copy and makes a final printout. The editor then checks the final draft for the last time. This includes making sure that sentences, or parts thereof, did not disappear or that excessive hyphenation did not creep in when the last changes were made.

THE EDITOR
CHECKS THE DRAFT
FOR THE LAST TIME

7.6. TEAM RESPONSIBILITIES

PROPER
PROJECT
MANAGEMENT
WILL ENSURE A
PRODUCT
DELIVERED
ON TIME

A good reporting process will ensure a successful product. This again is a function of good project management, collaboration of reporting team members and cooperation between the reporting team and project manager. Accomplishment of the above will ensure that a good product is delivered on time. The responsibilities could be dispersed amongst the team members, according to the skills and capacity available, with the overall accountability lying with the project manager.

7.6.1. *Project management*

The compiling of a SoR product, like any other project, needs proper management and coordination. A member of the national SoR reporting team could coordinate the process until such time that competence has been gained and teams are ready to take over full SoR reporting responsibility (Read more about SoE requirements in section 1.3).

Criteria for the selection of a reporting project manager could be the following:

- Project management experience
- SoR reporting experience (if not possible, co-opt someone with reporting experience from whom the project manager could receive guidance)
- Good communication skills
- Ability to work in and with teams
- Enthusiasm for SoR reporting

The project manager should:

- Ensure that the necessary competences, e.g. various technical areas, editorial, etc., are represented on the team
- Understand and ensure a smooth reporting process
- Ensure that all team members understand the reporting process and what is expected of them
- Manage team activities so as to promote buy-in into the reporting process and co-operation between team members, arrange regular team meetings and keep all team members involved – a challenge when teams from different institutions are involved
- Communicate information to all team members and report on progress – regular e-mails that include the whole team would keep everyone up to date with happenings and progress even if they are not directly involved
- Communicate deadlines and ensure that they are met
- Manage the review processes

7.6.2. *Team members*

The technical competencies of all the team members combined should cover the broad spectrum that is needed for SoR reporting. Their combined contributions will contribute to the scientific rigour, content and style of the report.

The report writing and editing are responsibilities that could be shared where the team partakes as a group or they could be delegated to a specific person or group within the team, with other team members providing the necessary data.

The final selection of the data and the way in which the data will be portrayed in the final product would be the responsibility of the editor (see section 7.4.7), the reporting team or an editorial group within the team. It is also the responsibility of the editor or editorial group to ensure that the end product addresses SoE reporting issues (refer to section 1.3).

Someone with graphics design experience, either as a team member or on contract, should be responsible for the design of the product (section 7.4.10).

Someone on the reporting team should ensure a smooth printing process. This would include the asking for quotations, checking of the blue print and staying in touch with a contact person at the printing company to ensure that printing and delivery is on time. The printing process is discussed in Chapter 8.

Responsibility for proper dissemination of the reports should also be ensured (see Chapter 9).

THE SHARING OF
RESPONSIBILITIES
WILL ENSURE
MAXIMUM CAPACITY
BUILDING

8. PRINTING

QUALITY
STANDARDS
MAY VARY

A printing company that is able to deliver a good quality product within budget and time constraints should be sourced. The final product should do justice to all the hard work that went into the production of a report or poster. Product quality should not be compromised. Printing companies are usually more than willing to supply a portfolio of work done. Follow up on references. Certain printing companies print directly from CD while others make positives first.

Graphic designers have their preferred printing companies and they usually include a mark-up on the printing quotation. Obtain quotations should the project manager not wish to use the designer's preferred printing company.

The following information should be supplied:

- Number of inner pages, e.g. 40 pages
- Page size, e.g. 297 x 210mm portrait
- Paper specification for cover (thickness in grams, e.g. 200 or 250g; type of paper, e.g. Magno gloss or Lumi silk etc.)
- Paper specification for inner pages (thickness in grams and type of paper)
- Full colour (inner pages and cover) and whether printed on the inside of the cover.
- Method of binding, e.g. cover creased, folded, collated, stitched with 2 wires and trimmed flush.
- Number of copies to be supplied
- Deadline for printing job to be finished
- Delivery address

A UV varnish on the outer cover to protect and prevent smudging can have either a gloss or matt finish. The extra cost compared to the total printing job is minimal. Check the actual cost with the printing company.

The printing company will prepare a blueprint after they have received the CD with the product layout. The editor checks the blue print for the following:

- Missing pages
- Missing sentences, paragraphs or parts thereof
- Correct order of the pages
- The line up of sections across adjacent pages

The editor then signs on each page to confirm satisfaction. The printing company will then commence with the printing job.

Confirm the delivery date and check whether the printing company is able to keep to the deadline.

After completion of the printing job, the CD containing the final layout should be safely archived for future reprinting purposes.

9. DISSEMINATION

USE
THE NORMAL
RHP DISTRIBUTION
CHANNELS OR
ORGANISE A
SPECIAL EVENT

Once the reports are stocked in a central storage area, it is important that they are distributed efficiently and quickly. It is pointless that, after all your hard work, the reports gather dust while the potential readers have no copies.

9.1. DISTRIBUTION

The more individuals that take responsibility for the distribution of the reports the greater the success will be. It is, however, crucial that the central distribution centre gets the reports and posters as quickly as possible to the secondary distribution points. The following are potential dissemination points:

- RHP communications office
- National, Provincial and Local Government Departments and Officials
- Catchment Management Agencies (CMAs)
- Conservation Agencies
- Individuals within study area
- Community Leaders
- Events
- The web page – make products available in pdf format also

9.2. LAUNCH

A launch is the single biggest event that creates awareness of a SoR product's availability. It could coincide with existing events such as "Water Week" or a conference or it could be a separate event. Think big and make it a memorable occasion.

The detailed planning of a launch event is not discussed here. However, the following advice could be considered when planning an event:

- Planning: Plan well, plan again and check the plan
- Set a date: Delegates need to plan their diaries in advance
- Booking of a venue: A suitable venue needs to be booked well in advance to avoid disappointment. Delegates are often attracted by the venue.
- Invite the media: It would need someone or something to attract reporters.
- Plan substitutes for the main figures: The keynote speaker e.g. a minister, although his office has agreed on a date, might not be able to attend. This can become known only a few days before the launch. The same applies to other dignitaries, from the master of ceremonies to the MEC or Premier of a province.
- Take enough reports/posters and other handouts: Everyone knows at least three others with whom they would like to share a successful product.

10. TIME FRAMES TO CONSIDER DURING REPORT AND POSTER DEVELOPMENT

BE AWARE OF
THE TIMEFRAMES
FROM THE START

Timeframes are important when reporting on the state of our rivers. A reporting team often has a launch event in mind before even starting to work on the report. It is therefore necessary to have an idea of when a product will be finished or to know in advance that more resources would be needed in order to meet a planned launch date (see Chapter 9).

Timescales that deal with the lag between data gathering and a published report are dealt with in section 6.1.

10.1. TIMEFRAMES FOR THE PRODUCTION OF SOR REPORTS

The timeframes that are needed for the production of a SoR report or poster are very much dependant on the following:

- project manager,
- the composition and size of the project team,
- the availability of a technical report (section 7.3.4),
- whether the team members are used to working together (section 7.6),
- the size and complexity of a study area
- the number of parties (other organisations) involved.
- Holiday periods e.g. Christmas holidays
- Availability of team members (their commitment to the project and the commitment of their managers)

Table 2 is derived from the national reporting team's experience with the development of the first three State-of-Rivers reports. The timeframes can be used as a guide. It expands on the timeframes that are needed for the production of a SoR report. It lists the task with the corresponding responsible person(s).

The guessed minimum calendar days (not necessarily working days) needed to complete a task as well as a healthy buffer for when things go wrong adds up to a total number of days needed for each task. Buffers are generous. Some tasks might not use any buffers while others use more than those indicated.

With tight project management and with the entire team giving priority to the SoR product, a report can be completed within 6 months. The reality check is, however, that the Crocodile, Sabie-Sand & Olifants report took approximately 9 months to complete, the Letaba & Luvuvhu report took 8 months and the uMngeni report took 12 months. If the team has a specific launch date in mind, rather start at least 8 months in advance. Even then the team needs to stay focussed and constantly track progress against the time scales given in the framework. Rather have the report printed and waiting than to have a launch without a report!

Table 2. Recommended tasks, responsible persons and timeframes for compilation of a State-of-Rivers report.

TABLE 2

Task No	Tasks	Responsible person	Minimum (days)	Buffer (days)	Total (days)	Notes
1	Scoping		3	3	6	
1.1	Project meeting	Provincial Champion & Project manager	1	-	1	To attend are: Provincial champion, delegates from participatory organisations
1.2	Collect material	Project team	2	3	5	Bring along suitable reference material and labelled photographs. Also bring all your ideas !
2	Technical Draft		26	16	42	
2.1	Source additional material	Project team	5	4	9	More information in Chapter 5
2.2	Adapt material (collation)	Editor and project team	10	5	15	Simplify and condense information
2.3	Compile technical draft	Editor	7	5	12	Populate template
2.4	Review draft	Project team	2	1	3	
2.5	Consolidate changes	Editor	2	1	3	Last 3 steps (tasks 2.3 – 2.5) can be iterative if care is not taken. Revised template needed or unavoidable. Provision for iterations were not made.
3	Design		23	15	38	
3.1	Graphics design quotation	Project manager	1	-	1	The graphics designer should be appointed towards end of completing the technical draft
3.2	Concept design	Graphics designer	3	2	5	Quote sometimes include the concept design
3.3	Approve concept design	Editor and project team	1	4	5	It can take a few iterations to get to an acceptable concept (for both parties). However, changes to the concept design after this stage can become expensive.
3.4	Design Report	Graphics designer	15	7	22	Designer availability and workload can influence this component significantly
3.5	Draft review	Editor & team	2	1	3	
3.6	Consolidate review & changes to draft	Designer	1	1	2	Either send the draft back to the designer (major alterations) or make a few notes on the copies and send out for review
4	Technical Review		13	8	21	
4.1	Print required no of proofs	Graphic designer	1	1	2	
4.2	Distribute for technical review	Editor and/or Team member(s)	1	1	2	
4.3	Final review	Reviewers (project manager & Editor)	5	2	7	If the draft is revisited at this point, depending on the technical review outcome, add about 5-10 days to time required to finish product.
4.4	Consolidate review feedback	Editor	2	1	3	
4.5	Changes & one set of proofs	Graphic designer	3	1	3	
4.6	Check changes	Editor	1	2*	3	*All changes not executed first time can lead to delays
5	Stakeholder Review		10	6	16	
5.1	Print required no of proofs	Graphic designer	1	1	2	
5.2	Distribute for stakeholder review	Editor and/or Team member(s)	1	1	2	
5.3	Final review	Stakeholders (project manager)	5	2	7	
5.4	Consolidate review feedback	Editor	1	1	2	
5.5	Final changes	Graphic designer	1	1	2	
5.6	Check changes	Editor	1	-	1	
6	Printing		11	11	22	
6.1	1 set of proofs & CD	Graphic designer	1	1	2	
6.2	Print report	Printing contractor	10	10	20	
	Total Days		86	59	145	
	Total Months		4	2.5	6.5	Calendar days (not necessarily working days)

10.2. TIMEFRAMES FOR THE PRODUCTION OF SOR POSTERS

Time frames for the development of a poster (Table 3) differ from those for a report (Table 2). The basic steps, however, are the same. A SoR poster could comfortably be produced within 4,5 months if a technical report is available.

TABLE 3

Table 3. Recommended tasks, responsible persons and time frames for compiling of a State-of-Rivers poster.

Task No	Tasks	Responsible person	Minimum (days)	Buffer (days)	Total (days)	Notes
1	Scoping		3	3	6	
1.1	Project meeting	Provincial Champion & Project manager	1	-	1	To attend are: Provincial champion, delegates from participatory organisations
1.2	Collect material	Project team	2	3	5	Bring reference material, photographs and your ideas!
2	Technical Draft		15	16	31	
2.1	Source additional material	Project team	2	4	6	E.g. map to use (GIS services can compile required map)
2.2	Adapt material (collation)	Editor and project team	5	5	10	Simplify and condense information
2.3	Compile poster draft	Editor	5	5	10	Decide what to use on poster (see section 5.10)
2.4	Review draft	Project team	1	1	2	Focus on text, map and photographs
2.5	Consolidate changes	Editor	2	1	3	
3	Design		10	6	16	
3.1	Graphics design quote	Project manager	1	-	1	Take ideas and spec to graphics designer for quotation
3.2	Concept design	Graphics designer	1	1	2	Quote sometimes includes the concept design
3.3	Approve concept design	Editor and project team	1	1	2	Suggest changes to concept design if necessary - remember graphics designers also have their ideas
3.4	Finish poster design	Graphics designer	5	2	7	Influenced by designer availability and workload
3.5	Review draft	Editor & team	1	1	2	
3.6	Consolidate review & changes to draft	Designer	1	1	2	For major changes send the draft back to the designer or indicate changes on the copies and send out for review
4	Technical Review		7	6	13	
4.1	Print proofs	Graphic designer	1	1	2	Decide on number of proofs that would be required
4.2	Distribute for review	Editor and team	1	1	2	
4.3	Final review	Reviewers (project manager & Editor)	2	1	3	
4.4	Consolidate reviews	Editor	1	1	2	
4.5	Changes & one set of proofs	Graphic designer	1	1	2	
4.6	Check changes	Editor	1	1	2	All changes not executed first time can lead to delays
5	Stakeholder Review		8	5	13	
5.1	Print proofs	Graphic designer	1	1	2	Decide on number of proofs that would be required
5.2	Distribute for stakeholder review	Editor and/or Team member(s)	1	1	2	This include stakeholders of the area and national RHP custodians
5.3	Final review	Stakeholders (project manager)	3	1	4	
5.4	Consolidate feedback	Editor	1	1	2	
5.5	Final changes	Graphic designer	1	1	2	
5.6	Check changes	Editor	1	-	1	
6	Printing		8	5	13	
6.1	1 set of proofs & CD	Graphic designer	1	2	3	
6.2	Print report	Printing contractor	7	3	10	
	Total Days		51	41	92	Calendar days (not necessarily working days)
	Total Months		2.5	2	4.5	

11. REPORT EVALUATION

How would the reporting team know whether they have achieved their goal with a specific product? The success could (and should) be measured through a comprehensive Satisfaction and Impact Assessment.

An evaluation could be done by asking specific questions. The questions would vary according to the target audience.

The questions could be posed through a written questionnaire or in person. While you would gain more insight from a personal assessment, a standard questionnaire template would give you more feedback in a shorter period.

The statistical interpretation of results obtained from a standard template would be another advantage. This would allow comparison of different catchments and tracking of the learning.

Select the questionnaire contents carefully. First test the questions, the possible answers you could get and whether they would be meaningful against a small group. The questions should address, amongst others, whether:

- The goal of the report/poster was achieved
- The report format was correct for the audience
- The information was pitched at the correct level
- The report/poster contained the correct type of information
- The report/poster empowers the reader to enter debate with knowledge and confidence
- The information has been used

Questions that could be included in a questionnaire:

- Does the cover and title inspire you to read the report?
- Do you find the style of the report suitable?
- Is the layout clear and logical?
- Is the information relevant for your application?
- Does the information help you in management and decision-making?
- Do you understand the message?
- Are the most important issues addressed?
- Are the difficult terms explained?
- Is the report successful as a reference document?
- Does the report allow you to enter debate with knowledge and confidence?
- How much did you read: less than 30%, 30-60%, 60-90% or more than 90%?

THE
OUTCOMES OF
REPORT EVALUATIONS
SHOULD BE USED TO
THE BENEFIT OF
FUTURE REPORTS

SATISFACTION OF
THE RHP CUSTODIANS
SHOULD NOT BE
NEGLECTED

The feedback obtained from the satisfaction and impact assessment should be shared at national and provincial level. The information should be used to improve future reports (see Chapter 11). This process could be described through an adaptive management cycle or continuous learning cycle (section 11.1).

The national custodians should also be satisfied with the product(s). This is normally discussed during the stakeholder review (section 7.5.1), but communications in this regard should continue. A questionnaire could be sent to all the custodians where their degree of satisfaction is rated.

11.1. CAPTURING OF LEARNING AND IMPROVEMENT

Why has the SoR reporting changed so much in such a short time span?

A reporting cycle is not completed without active reflection and capturing of learning. The learning from one product should be transferred to the next product to ensure continuous improvement of SoR products.

Outcomes from impact and satisfaction evaluations should be captured and communicated to follow-up production teams. Figure 13 explains the continuous learning concept in SoR reporting. Capturing the knowledge gained through writing reports has proved over the years not to be the most successful way of transferring knowledge.

Continuity within the project team, even one or two members from a previous reporting session partaking in the next reporting session would ensure that the learning is transferred. The “new” team’s learning is also fast tracked by having an “experienced” member on the team. Although the whole reporting process is a learning event, the capturing and transferring of knowledge from the one team to the next is very important.

CONTINUITY WITHIN THE REPORTING TEAMS WOULD ENSURE CONTINUOUS IMPROVEMENT

FIGURE 13

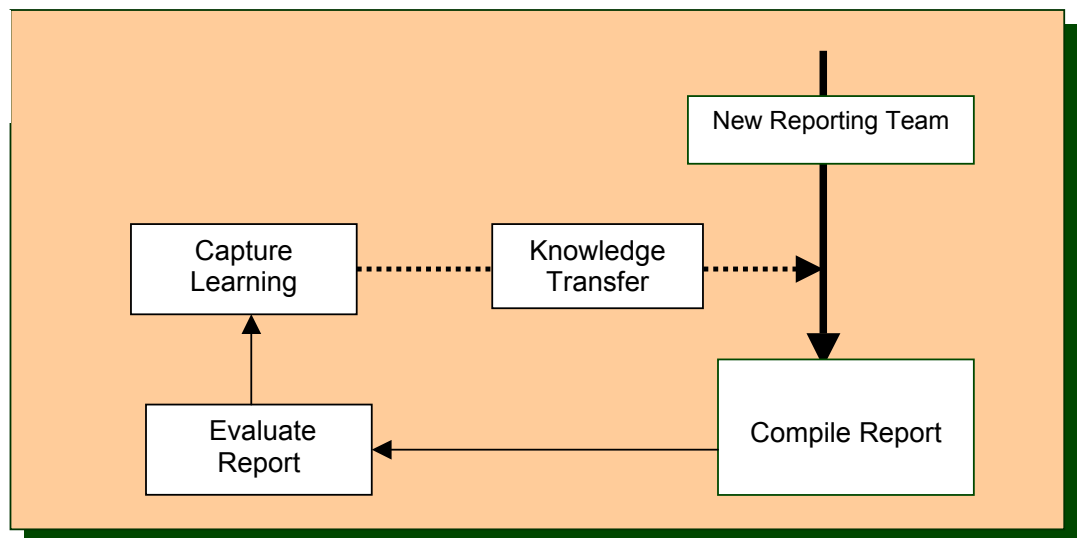


Figure 13. The continuous learning cycle of SoR reporting. The success of SoR reporting depends on the continuous learning process. The lessons learned during one reporting cycle are transferred to the next cycle.

In order to facilitate learning and capacity building within the teams a standardised questionnaire could be used that addresses the following:

- What did you learn?
- Who learned?
- What would you do differently next time?

11.2. THE REVIEW PROCESS AS A DRIVER OF PRODUCT EVOLUTION

In order to ensure ongoing improvement of the SoR products and to ensure stakeholder satisfaction, each report or poster is subjected to an intensive review process. The review could be either through interviews or through the questionnaires. Interviews have the advantage that you get the information you need from specific individuals you selected. Questionnaires on the other hand, reach a much wider group in a short time and the data received can be statistically analysed.

An extensive evaluation (interviews) was conducted on the first report, *State of Rivers Report: Crocodile, Sabie-Sand and Olifants River Systems* during May and June 2001 and included resource managers and scientists. The second evaluation was conducted in the form of questionnaires that were distributed amongst WISA (Water Institute of Southern Africa) 2002 Conference attendees. This second evaluation included the first and the second report, *State of Rivers Report: Letaba and Luvuvhu River Systems*. Feedback was received from policy developers, managers, scientists and educators.

The aim of the questionnaire was to ascertain whether:

- The goal of the report was achieved
- The report format was suitable for the target audience
- The information was pitched at the correct level
- The report contained the correct type of information
- The report empowered the reader to enter debate with knowledge and confidence

11.2.1. Outcomes of the SoR report evaluations

The outcome of the first evaluation proved, amongst others, that about 60% of those that were interviewed, although delighted with the report, did not actually read it. This was quite a disappointment since the reporting team considered the report to be a major step towards successful science communication.

After considering the feedback from the first report's evaluation, the reporting team decided to change the style of reporting. Attention was given to the visual appearance, the reduction of text and the user-friendly communication of scientific information.

The outcomes of the second evaluation process are captured in figures 14, 15 and 16. Feedback from managers and scientists that reviewed both the first and second reports were processed. The second report was rated to be the more suitable for the audience's applications. In some areas the first and second reports was rated the same (Figure 14).

It is interesting, however, that the managers' ratings of the two reports differed from the overall ratings as well as those from the scientists. Figure 15 shows the areas in which the managers differed from the overall view.

The managers read significantly bigger proportions of the second than of the first report (Figure 16).

LISTEN TO
THE AUDIENCE AND
THE STAKEHOLDERS
AND EVOLUTION IS
INEVITABLE

FIGURE 14

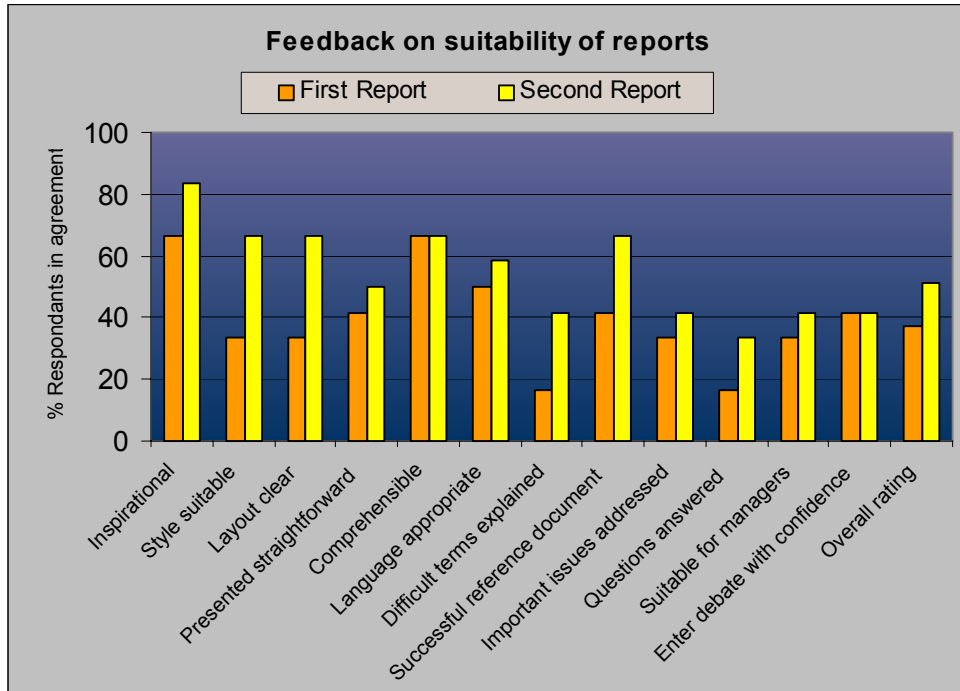


Figure 14. The outcomes of the second evaluation of the first and second reports. Feedback from managers and scientists that reviewed both reports were used.

FIGURE 15

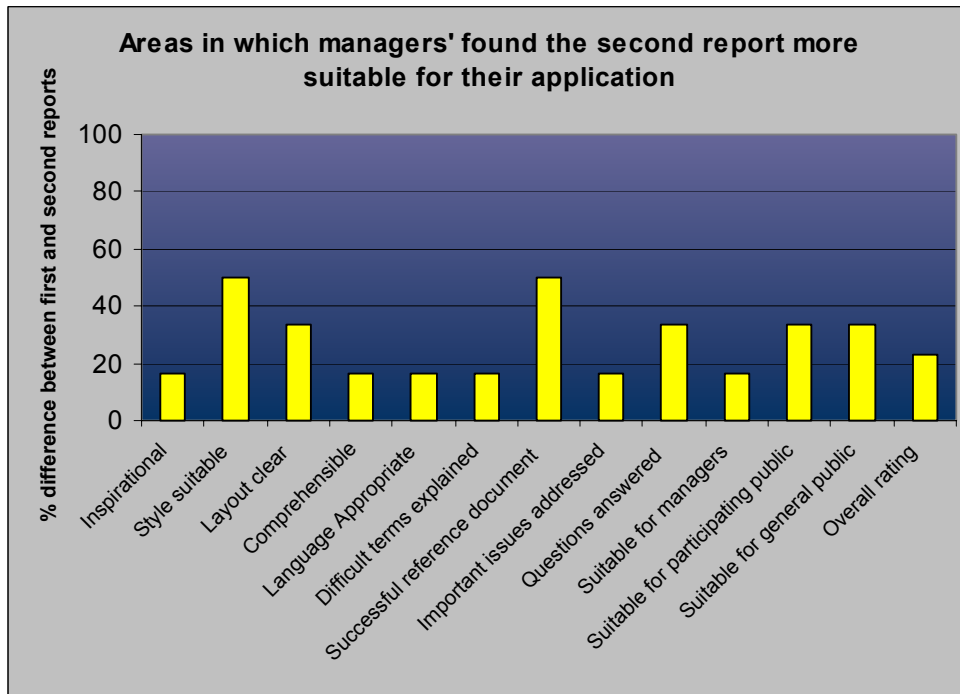


Figure 15. Areas in which the managers found the second report more suitable for their application.

FIGURE 16

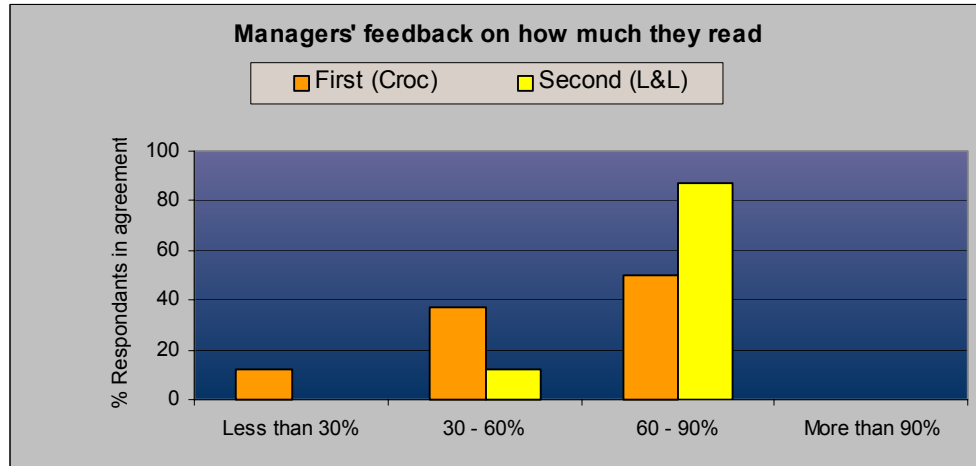


Figure 16. Feedback from managers on how much of each of the reports they have read.

11.3. POSSIBLE FUTURE DEVELOPMENTS

As the reporting process evolves and more and more reports are being developed, the drafting of a standard template that fulfils most of the reporting needs might become inevitable. The use of such a fixed report structure is something that should be debated.

The pros would be a timesaving component and thus cheaper production costs. The time saving would be in the sense that there will be little debate on what the report should look like, because the guidelines would be comprehensive. The report writer(s) would know exactly how much text could be accommodated on each page. The design stage would also save time since some of the layout would be repeated and minor changes would be necessary to give the report an individual look e.g. new photographs and other small design changes.

The cons would be less provincial individualism and available data possibly not fitting the template. The lack of individuality could be considered as being good or bad. If the data does not fit into the standard template it might be an indication that the text is still written in too much detail (see section 7.4.2).

A FIXED
TEMPLATE:
PROS AND CONS

