

THE EVOLUTION OF STATE-OF-RIVERS REPORTING IN SOUTH AFRICA

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ABSTRACT

The River Health Programme (RHP) is a national monitoring initiative that measures and reports on the state (or health) of South Africa's river systems. Since the first State-of-Rivers (SoR) report on the Crocodile, Sabie-Sand and Olifants River Systems, the RHP has produced another two reports and a poster.

The first report was a pioneering publication that paved the road to improved science communication within the RHP. Its publication was however, followed by the disenchanting realisation that this product did not have the desired impact on the defined target audience. The review showed that few resource managers read the report in full, and that the public at large found the level of information somewhat overwhelming. All scientific conventions were thrown overboard with the second, softer, coffee table-style report, the State of the Letaba and Luvuvhu River Systems.

This paper describes the reporting process, the response of the target audience and the challenges experienced during the production of soft science communications. The challenges include dealing with stakeholder expectations, the interpretation of aggregated data as well as the fears and resistance of scientists to soft communications. Key lessons were learned from the SoR report evaluations and this consequent continuous learning approach can be used to improve future RHP communications.

WHAT IS THE RIVER HEALTH PROGRAMME?

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

WHY DO WE REPORT ON THE STATE OF RIVERS?

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

State-of-Rivers reporting aims to:

- **Inform the people of South Africa.** River systems deliver various goods and services to people. The associated river uses, however, have impacts of various magnitude and nature. SoR reporting makes information on South Africa's river systems readily available. It also increases public awareness around environmental and development issues.
- **Support environmental decision-making.** Resource managers are tasked with the challenge of maintaining a balance between river use (the benefits from river services) and a level of river protection that would ensure continued benefits to people. SoR reporting captures the river health assessments and related information that is needed to improve river management.
- **Provide spatial and temporal benchmarks.** Through comparison of environmental performances of different areas, the effects of different impacts or drivers will be substantiated. Good decisions that relate to maintaining a balance between river use and river protection also require information about the state of a river over time. Through continued biomonitoring and reporting, trends in river health will become available, which will in future allow comparison of data and interpretations. The availability of this river health information will ensure that correct decisions can be made.
- **Audit Management Performance.** SoR reporting sets a point of reference against which the effectiveness of management strategies in South Africa can be audited. Through comparison, over time, SoR reports will be able to ascertain whether the then present state of the rivers have

converged, through management intervention, towards desired states or not. Through proper research, causes for the latter can be identified and management strategies adapted.

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 River Health Programme (RHP) implementation cycle and indicates the rationale of SoR reporting within this cycle.

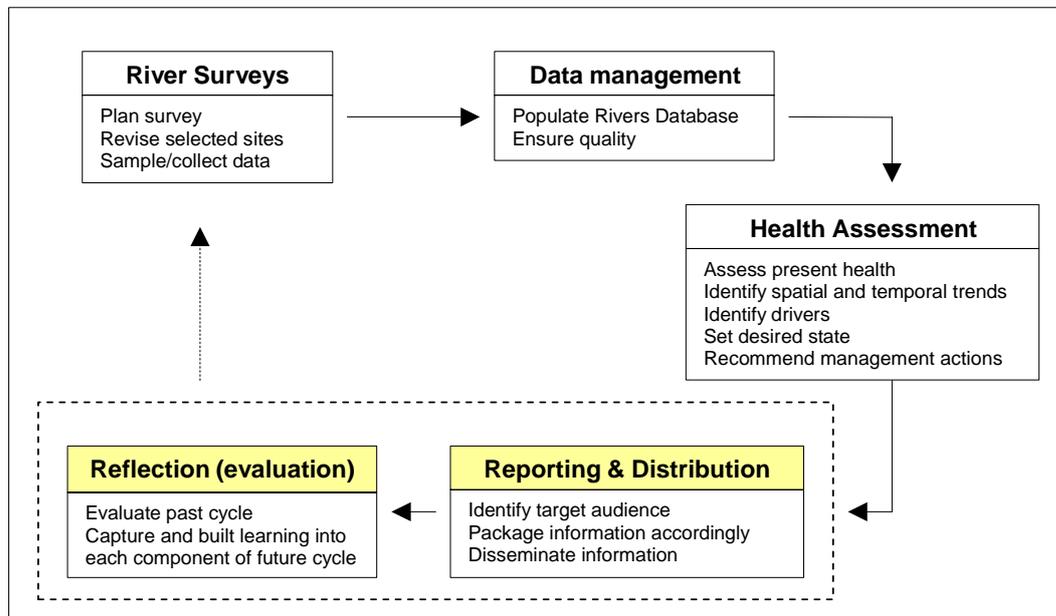


Figure 1: Adaptive implementation cycle for the RHP. This cycle (adapted after Roux, 2000) explains the monitoring and reporting cycle of the RHP. The areas encircled with a dashed line presents the two areas dealt with in this paper, namely SoR reporting and report evaluation.

The SoR reports and posters are suitable for quick reference. These complement the more comprehensive, supporting technical documents that at times could be too cumbersome to consult. The SoR products therefore provide decision-makers (at various levels of decision-making) of the state and trends that would enable them to design strategies for improvement without getting bogged down by the detailed science behind the presented information.

The way in which the abundance of data is assessed and presented plays an important role in the transfer of information on the state of our river systems. SoR products therefore, present the information in user-friendly (easy and understandable) formats.

WHO IS THE TARGET AUDIENCE?

The RHP makes use of SoR reporting to convey information to the various target audiences. In order to develop a product that is suitable for the audience it is necessary to decide who the end-user will be. A pamphlet aimed at politicians would differ from a poster for school children that can be displayed on classroom walls or a booklet for rural communities. None of these would contain the kinds of information that a scientist would look for in a report.

Defining the target audience and then deciding on the format of each product would ensure that:

- The products contain suitable information
- The message is pitched at the correct level
- The message has maximum impact
- The readers gain maximum benefit

Examples of State-of-Rivers products and the particular target audiences are listed in Table 1. It also gives an idea of the history of SoR reporting in South Africa.

TABLE 1. RIVER HEALTH PRODUCTS AND THE TARGET AUDIENCES.

State-of-Rivers Products	Target Audience	Status & Purpose
RHP web page	Environmental politicians#, Resource managers*, Provincial champions and implementation teams, scientists, educators, public	Online Information always available to broad target audience
SoR reports (listed in bibliography)	Environmental politicians#, Resource managers*	Printed 2001 & 2002 Informative and management directed
SoR posters: River Health – assessing the ecological state of rivers in South Africa The Ecological state of the Modder River	Environmental politicians#, Resource managers*, Stakeholders**	Printed 2000 and 2001 respectively Informative and management directed, general awareness
Rural Communication	Rural Communities, schools	Draft Informative & awareness creation, explains the benefits of good practices
Other Products		
Colouring-in book	Pre- & Primary School children and parents, school teachers	2000 & 2001 General Awareness
Z-fold	Environmental politicians#, Resource managers*, Sectors and Industries	Printed 2002 General awareness
Bookmarks	All	General awareness

Environmental politicians include ministers and senior managers of relevant Departments of National Government; Members of Executive Committees and Premiers of Provincial Governments; National and Provincial Environmental Councils are implicated.

* Resource Managers include local municipal decision-makers, Directors of Departments with environmental responsibility within National and Provincial Government; National and Provincial Parks Boards; Water Boards/Authorities; NGO's and Industry.

** Stakeholders include a diverse group such as communities, conservationists, schools, farmers, industries, scientists, the media and all other interested and affected parties.

The SoR reports have the potential to be influential products. Therefore, the remainder of this paper focuses on challenges faced and lessons learned in producing these soft science communications.

REPORT EVOLUTION AND THE LEARNING CYCLE

The differences in style between the first reports are significant and so we need to ask the question; "why has the SoR products changed so much in such a short period?" In order to understand the evolution that took place, one first needs to look at the reporting process and how the reporting teams function in relation to the process.

Reporting Teams

Each reporting team consisted of one or more members from the national reporting team and the RHP provincial group. The national team members, having been involved in previous SoR productions,

would typically have some reporting skills compared to the inexperienced provincial team members. This will be the make up of the reporting teams until such time that sufficient reporting capacity has been built within the provincial teams that would allow them to take over the reporting process.

The Reporting Process

The production of a report consists of the following steps:

1. Agree on the scope of the report and formulate the concept
2. Compile draft report
3. Review the drafts (various reviews needed)
4. Publish the final report
5. Evaluation of the report

The reporting process is not complete without a proper evaluation of the product.

Capture Learning and Transfer the Knowledge

How would the reporting team know whether they have achieved their goal with a specific product? The ultimate success of SoR reporting would be monitored through improved decision-making and thus sound water resource management. This is, however, a long-term measurement. In order to improve its products, the reporting teams need regular feedback. Each report or poster is, therefore, subjected to a comprehensive satisfaction and impact assessment.

This evaluation process would include the following:

- Get feedback from the end users
- Reflect on the reporting process and outcomes
- Capture the learning
- Transfer the knowledge

The learning from one product should be transferred to the next, ensuring continuous improvement of SoR products.

Learning Cycle

The learning cycle (figure 2) explains the role that the evaluation process plays to achieve ongoing learning and improvement of products.

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

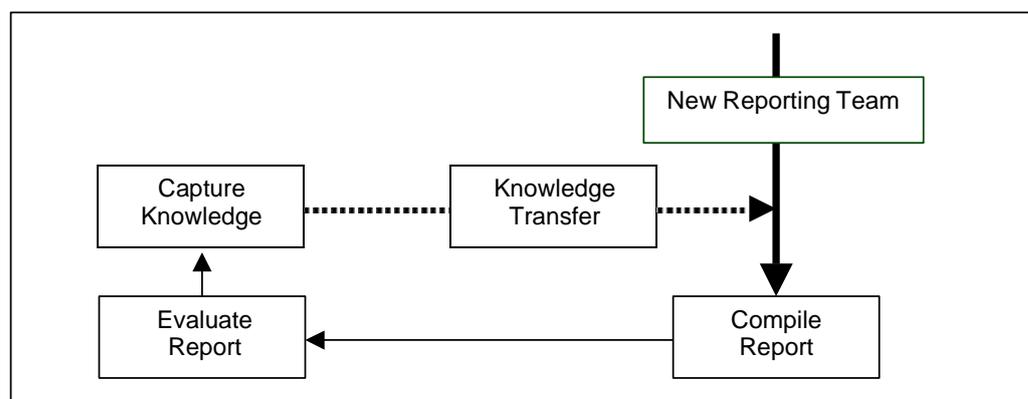


Figure 2: The continuous learning cycle of SoR reporting. The success of SoR reporting depends on the continuous learning process. The lessons learned during one reporting cycle are transferred to the next cycle.

The feedback obtained from the satisfaction and impact assessments should be shared with other report developers. The information should be used to improve future reports. The outcomes of these report evaluations can be singled out as the most important driver of the improvement or change of SoR reports.

The successes of SoR reporting are intensified through:

- Satisfaction and impact assessments
- Knowledge transfer and working together

THE REPORTING FORMAT

The SoR report, The Crocodile, Sabie-Sand and Olifants River Systems (2001), was the first of its kind within the RHP. (In the remainder of the paper, this report is referred to as the first or Crocodile report). The reasoning behind the decision to completely break away from conventional scientific reporting format included the following:

- The successful continuation of the RHP depends to a large extent on the effective communication of river health to the relevant audiences.
- The report or poster should contain the relevant information to enable informed decision-making.
- An attractive format would encourage reading and stimulate the desire to gain more knowledge.

When a message is properly understood, it allows river stakeholders and managers to participate in discussions on water management in an informed and confident manner. It could also include debate regarding river health matters while participating at a river forum meeting or even at home, spreading the word within a household or among friends.

The success of the product could, therefore, be measured through the number of managers and stakeholders that read and understand the reports.

Review of First SoR Report

The first (Crocodile) report was evaluated through having interviews with various members of the target audience (environmental politicians and decision makers). Scientists, although not part of the target audience, were included in this review process in order to gain knowledge of how they would react to publications of this kind.

The outcomes of the discussions are captured in figure 3.

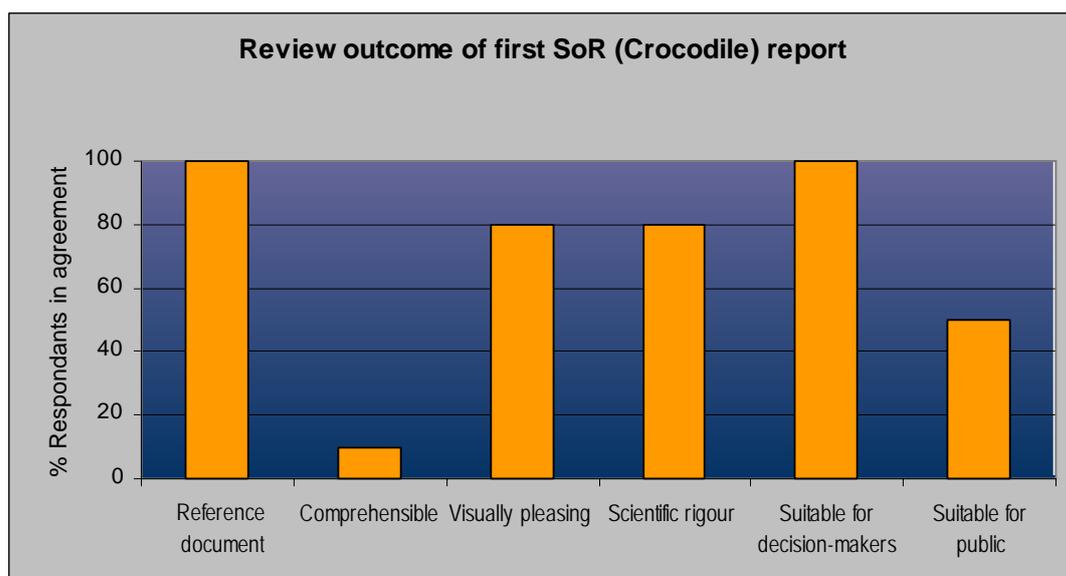


Figure 3. The review outcome of the first report, the *State-of-Rivers report: Crocodile, Sabie-Sand & Olifants River Systems*, conducted during April and May 2001.

The outcome of the evaluation process showed that the audience:

- Were delighted with the report
- Perceived the report to be a good reference document
- Found the report suitable for managers (from the same category as where they come from)

Despite this positive feedback, the report did not have the desired impact. Less than 40 % of those interviewed read the report. Although 80% of the reviewers agreed that the report was visually pleasing, a common response was that there is too much text, it is difficult to read and that the report could have more images.

The decision to change the format

Realising that the report did not have the desired impact was a disappointment as the reporting team considered this to be a big step towards successful communication of the health of South Africa's river systems.

The editorial team was now quite aware that the SoR reports would have to compete for a busy manager's attention. It is important that the target audience, apart from implementing the suggested management actions, would:

- Want to and make time to read the SoR reports
- Feel empowered by the reports and take ownership
- Show and tell others about and encourage them to read the report

With this feedback still fresh in mind and the production of a next report coming up, the reporting team decided to create a coffee table-style product.

The Second Review Process

After publication of the second SoR report, Letaba and Luvuvhu River Systems (2001), another round of evaluations was conducted. The evaluation was in the form of a written questionnaire circulated amongst WISA (Water Institute of Southern Africa) 2002 Conference attendees. The WISA Conference was chosen because there would be a wide audience (policy makers, managers, scientists & educators) all in one way or another connected to the water field and most of them have not seen a SoR report before.

Participation in the review process was requested in return for a free copy of the report/s of choice. Some took the first (Crocodyle) report, others took the second (Letaba & Luvuvhu) report, while some requested both.

Questions were posed that would ascertain, 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

Outcomes of the Second Review Process

The feedback was grouped according to whether one or both reports were reviewed and what the reviewers considered themselves to be (policy developers, managers, scientists etc.). Since managers and decision-makers are the main target audience of SoR reporting, the feedback concentrates on their feedback and perceptions.

As far as presentation style, layout, simplicity and language were concerned the ratings were in favour of the second report. Figure 4 shows the ratings of the managers (decision-makers) in so far as the reports were successful as reference documents, comprehensiveness, addressing of important issues and suitability for decision-makers. All of these, as well as the overall rating, were in favour of the second report.

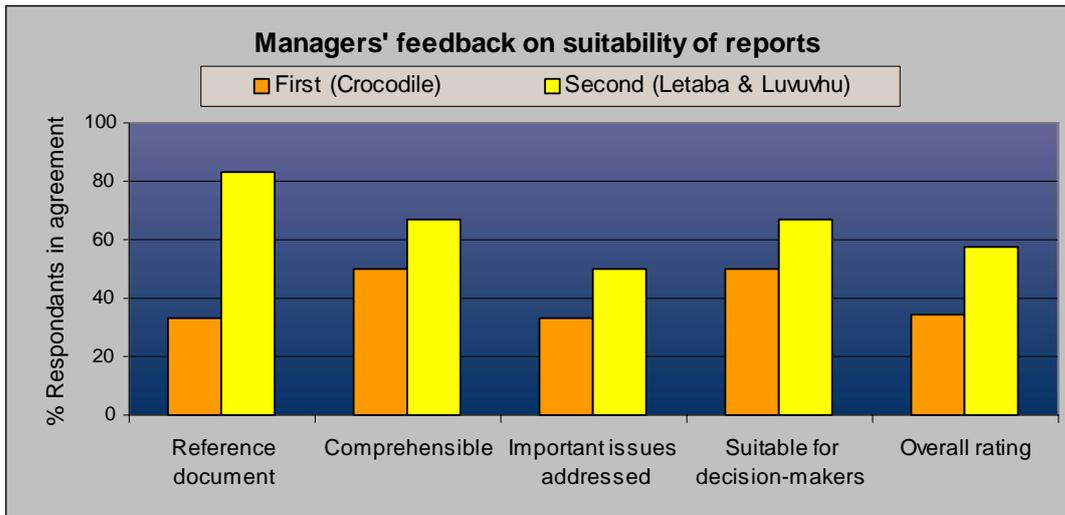


Figure 4. This graph indicates the perceptions of the managers that read both the first (Crocodile) and second (Letaba & Luvuvhu) reports.

Scientists perceived the first report to be more relevant for their application and more comprehensible (not illustrated in figure 4). In contrast to managers, scientists also thought that the second report was not suitable for managers or the participating public. Despite these strong beliefs, the scientists overall rating was slightly in favour of the second report.

Of all the managers that evaluated the reports, 75% agreed that both the first and second reports allow them to enter debate with confidence. However, the difference in the number of managers that read a good portion of the reports is significant (Figure 5). Half of the reviewers in management positions read more than 60% of the first report compared to the 87% that read more than 60% of the second report.

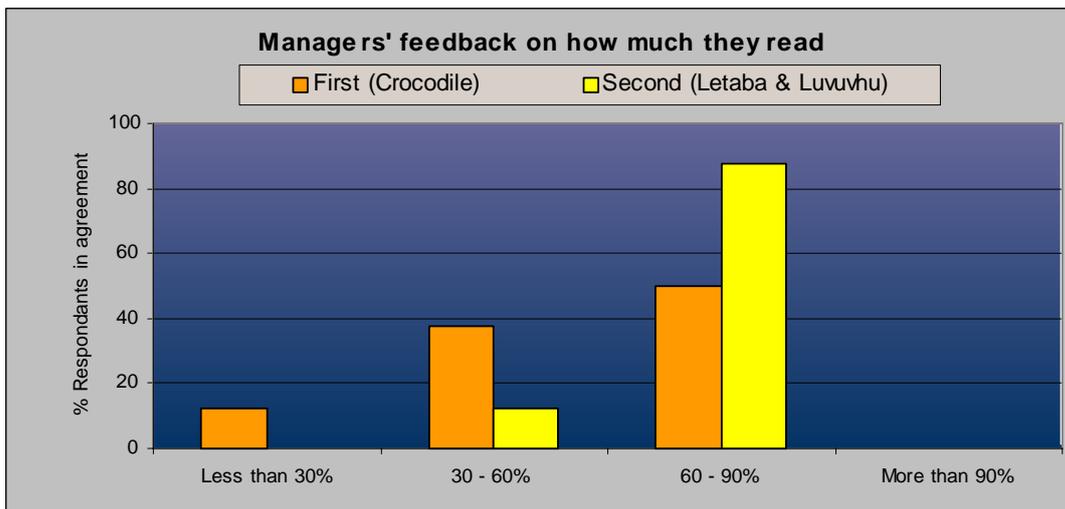


Figure 5: Managers feedback on how much of each of the reports they read.

CONCLUSIONS

1. Managers by far preferred the second report. They found the presentation style much more suitable and read nearly twice as much.
2. The managers' feedback was often in conflict with those of the scientists. This emphasises the paradigm shift that is needed when scientists engage in communications to target audiences other than scientists.
3. It is necessary to continue product evaluations amongst the relevant target audiences.
4. The reporting teams encountered many challenges during the production of SoR reports. The challenges include the following:
 - The SoR products have to fight for attention amongst an overload of information – the first report was not read. Managers' schedules are generally full and they are pressed for time.
 - The audience are decision-makers, but from various levels in society. It is difficult to communicate technical knowledge to an audience without the technical background in such a way that they understand the message, do not lose interest or feel inferior and can enter debate with confidence.
 - Scientists' biases and behaviour: There is a resistance amongst scientists to present results through popular communications. Scientists are used to producing thick technical reports that only a few people (usually those in the same research field) read.
 - Data is aggregated for these types of reports. Conclusions are often assumptions, based on expert opinion and should be communicated clearly.
 - The credibility of scientists and science influences the effectiveness of communication. Factors affecting credibility include: the abstract nature of scientific research (it could be perceived by the public as hiding important information); contradicting information (from different sources); insensitivity to local conditions and conventions (lack of understanding of local culture and the way things are done).
 - Scientists and decision-makers need to find common ground (level the playing field or meet in the middle) where they can meet and discuss relevant issues and understand one another's point of view.
 - Human behaviour and facilitating change. Scientists are often concerned with their one area of specialisation only. However, the public has many other concerns and daily demands on their lives to address before they delve into the scientific details. SoR data, coming from scientists, does need to be communicated in a more holistic way to demonstrate practical benefits to the target audience or reader. It should include economic and social issues e.g. public perceptions and the influence of research outcomes on them.
 - Practical challenges for the RHP include the limited space in which to compact masses of information and the heterogeneous audiences. The eleven official languages of South Africa provide additional challenges.

LESSONS LEARNED AND HOW TO DO THINGS DIFFERENTLY

Several important lessons were learned, including the following:

- Be sensitive to specific needs. During the reporting process the needs of the target audiences as well as the reporting teams should be considered.
- Make use of multi-disciplinary teams – team members should come from different backgrounds and have variety of skills e.g. scientists, sociologists, communication experts, local decision-makers.
- Transfer learning from one report to the next – Incorporate the good into the next cycle and try to avoid the bad, in other words to learn from mistakes.
- Incorporate economic and social issues – this is part of communicating the benefits of improved river health to communities and demonstrating how good river practices can make a difference in their lives.

- Focus on promoting change in human behaviour. Those living upstream of a river do not see the impacts their activities have on those living further downstream. If people cannot see the problem on a daily basis, why should they be the ones to do something about this?
- Arrange workshops or events that support the message – involve the readers and allow dialogue. Participation is one of the best communication tools.

How would the reporting teams know that they are doing it right?

The success of SoR reporting can be measured through short term and long-term outcomes. The short-term outcomes would implicate the degree to which the reports are read, understood and accepted, while the longer-term outcomes would be an indication of the successful implementation of the suggested actions. The success can be measured through the following:

- Feedback from audience (short term) – check their level of understanding and acceptance.
- Reference of reports (medium term) – are the reports used within scientific publications and as general reference documents?
- Audits of management actions (long term) – changes to the suggested management actions would demonstrate that the decision-makers gained appropriate knowledge from the reports.
- Change in human behaviour and perceptions (short, medium and long term) – do community activities along the rivers reflect an understanding of river health and do communities demonstrate ownership of river resources?
- Decrease in the gaps between the present river health and the desired states (long term) - do changes in river health demonstrate successful implementation of the proposed management actions?

The way forward

- Revisit the communication/reporting team composition
- Continue to review reports
- Keep reporting process dynamic to include necessary changes
- Recognise that there is room for improvement (there is a lot to learn)
- Look out for changing behaviour

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