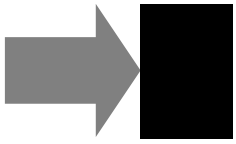
4. THE ROAD AHEAD

4.1 THE PROBLEMS

There are a number of specific problems being experienced by the various provinces. The adjacent figure summarises these. It is not the intention to imply that all the problems are being experienced by all provinces. Furthermore, where they occur, they are problematic to different extents.



It should also be emphasised that in some provinces quite the opposite of some of the issues is evident. There are organisations perceiving a real need for the RHP. There are now some demonstrable results (like the State of the Crocodile River Report). There is considerable support given by certain superiors in government departments. However, **this document is aimed primarily at those regions in which problems are being experienced**.

A number of regions simply lack the resources to do justice to RHP. This is caused by a number of factors. Since the introduction of legislation requiring EIAs to be performed on developments, government departments have been overwhelmed with such reports for reviewing. Since this is a well-defined statutory requirement, this tends to get a higher priority than RHP implementation. This is notwithstanding the fact that DWAF also has a statutory responsibility to establish monitoring programmes, associated information systems and to make this information available. There is a lack of trained personnel generally, but particularly within government departments. That is, even if they had the time, they do not have the necessary expertise. Although consultants can be used, they remain relatively expensive.

In some regions there is an apparent lack of concerned parties with a real need for the RHP. The lack of demonstrable results in some regions has also been mentioned as a deficiency. In terms of the “demonstration-for-resource allocation” model, both of these issues affect each other. Without local demonstrable results, convincing potential concerned parties to get involved is more difficult. However, without concerned parties applying the RHP, it is not easy to produce the demonstrable results.

The remainder of this section specifically addresses issues and actions that deal with these problems.

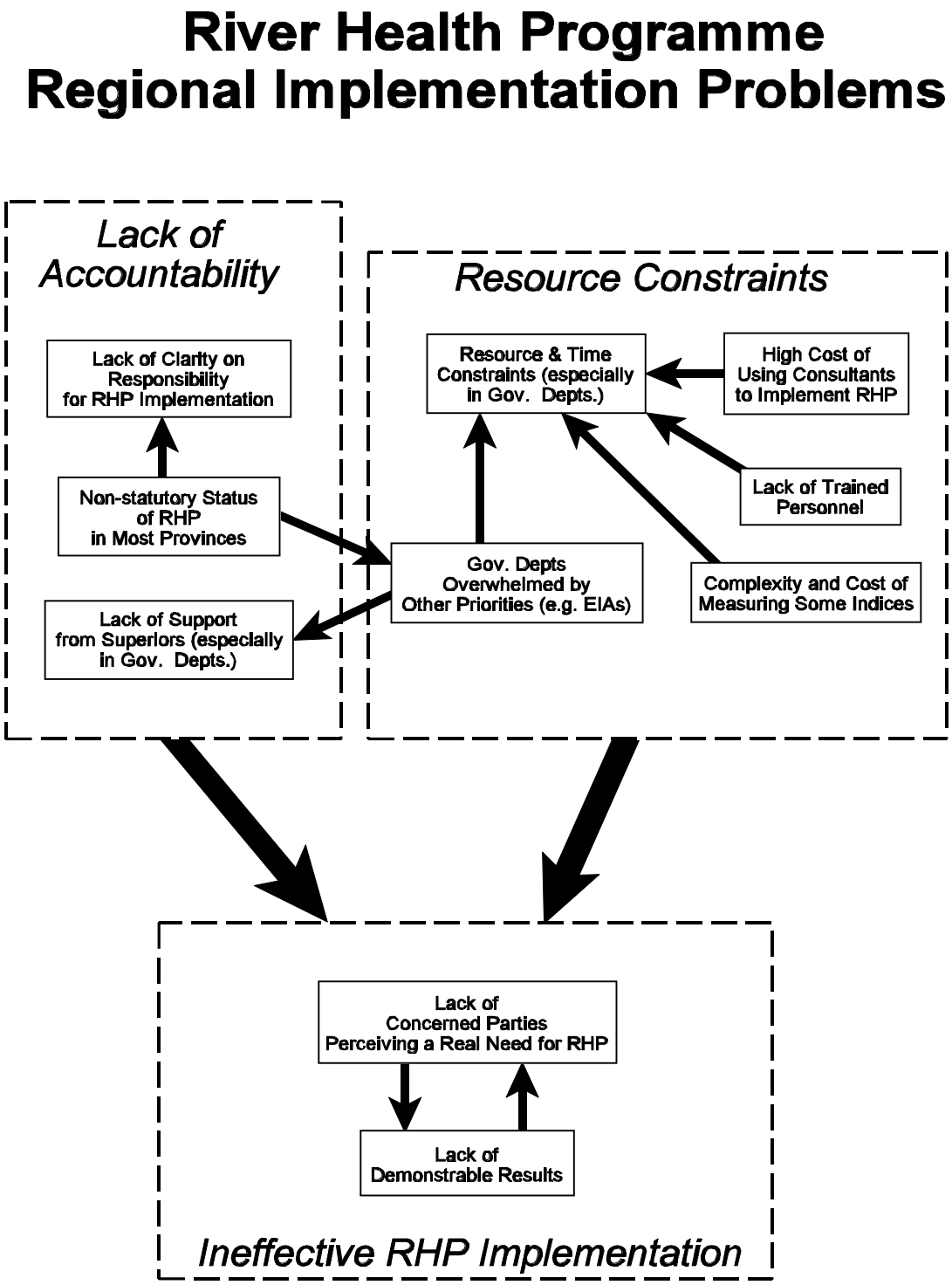


Figure 4.1. Some of the problems impeding regional implementation.

4.2 RHP OBJECTIVES

Objectives are acutely associated with attaining a vision. It is therefore appropriate to examine the current objectives of the RHP.

The objectives of the River Health Programme are typically stated as follows [Roux, 1997]:

1. **To measure, assess and report on the ecological state of aquatic ecosystems;**
2. **To detect and report on spatial and temporal trends in the ecological state of aquatic ecosystems; and**
3. **To identify and report on emerging problems regarding the ecological state of aquatic ecosystems in South Africa.**

One apparent problem with these objectives is that they do not suggest how attainment of each objective (and sub-objective) is best measured.

It is reasonable to assume that it is intended that each task is done with the utmost scientific integrity (though even this could be made explicit). Therefore, it may be possible to measure success from a scientific point of view.

A common misconception of technology management is that technological advances have intrinsic value. However, the reality is that the customer (the water resource manager), through acceptance and application of the technology, determines value [Steele, 1989].

However, the objectives, as stated, are not explicit about who is requiring the reports and therefore how they might be used. It is stated elsewhere that the RHP is intended as a management information system [Roux, 1997]. In particular, it must support the management of water resources and aquatic ecosystems. Over the years, understanding of the intended capabilities of the RHP has been refined. It is realised that the RHP is primarily a national programme that measures and assesses the general state and annual changes over river reaches [Roux, 1998]. It is not its intention to provide day-to-day operational information or for measuring exact river conditions at specific sites. It has also been proposed that the RHP play an important role in determining the ecological reserve and to assist in the implementation of water quality objectives in a water resource management context [Uys, 1998].

Good information is accurate, complete, economical, reliable, relevant, simple, timely and verifiable [Stair, 1992].

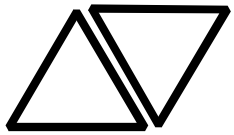
It is proposed here that these hitherto implicit aspects (the managerial relevance and the sound science) are included in a new objective. It is important to note that it is not the intention here to change in any way the fundamental (and now widely accepted) objectives of the RHP. It is the intention that implicit objectives are simply made explicit. Accordingly the following objective is proposed:

4. **To ensure that all reports provide scientifically and managerially relevant information for national aquatic ecosystem management.**

By “scientifically relevant” is meant that the scientists are confident that the right things have been measured in the right way. By “managerially relevant” is meant that the information

provided by the scientists is used in a meaningful and rational way for management of riverine ecosystems.

4.3 TOP-DOWN AND BOTTOM-UP



The successful implementation of the RHP will involve a careful combination of top-down and bottom-up approaches. The top-down approach will have its basis in the current legislation and the creation of an infrastructure to implement and enforce it. The bottom-up approach will be based on identifying those local and regional concerned parties who will themselves benefit from involvement in the RHP. This document deals with both. Particular circumstances will dictate which approach is the most applicable and most likely to produce the desired result at that time.

An appropriate combination of top-down and bottom-up approaches should be adopted with emphasis on bottom-up.

However, **bottom-up should take precedence**. The implementation of a primarily national biomonitoring programme with limited resources requires resource allocation from regional and local parties. It is realistic to assume that such parties will not have national objectives as their top priority (since, simply put, they cannot be paid to do so). Therefore, for them to implement a biomonitoring programme, it must also be in their own interests. This should be the basic principle driving implementation from the bottom up. Furthermore, it is recommended that protocols be developed within the RHP that delineate local implementation (site selection, reporting etc.). That is, the programme is encouraged to “go local” with the specific aim of encouraging local players to find a “win-win” solution in which they see a well-defined return on their investment. That is, provide them with the tools for local implementation in such a way that a contribution to the national objectives is ensured.

4.4 STATUTORY LEGITIMACY

It is proposed that an initiative be undertaken to establish some degree of statutory legitimacy for the RHP in the provinces. The aim could at least be to ensure that the scientific measures developed from it form integral, official, enforceable and binding criteria which will provide some legal certainty as to the scientific basis of the Reserve and the Resource Quality Objectives. This will also remove the possibility of arbitrary and political decision-making during the process of their development.

It is strongly recommended that the RHP ensures constant input to the National Water Resource Strategy. Furthermore, the RHP should align itself as much as possible with the use of legitimate water management institutions (catchment management agencies, water user associations, and so on) in coming years.

4.4 INCREASING THE RELEVANCE OF RHP INFORMATION

The usefulness of RHP information to a water resource manager is very much a function of the capabilities of that manager. Managing aquatic ecosystems is complex. It cannot necessarily be assumed that all water resource managers are familiar with the management of aquatic ecosystems. It is therefore explicitly proposed here that the following activities of the RHP remain active and increase in intensity in coming years:

1. The development and refinement of aquatic ecosystem management models that provide a framework for effective use of RHP information.
2. The development of grassroots awareness and education in respect of aquatic ecosystems.

Both of these activities are aimed at facilitating the achievement of the newly proposed objective (number four), namely producing relevant information. They are essentially providing tools for the intended recipients of the RHP reports and therefore help attain the RHP objectives.

Papers have been produced [Roux, 1998; Roux, 1999; Roux *et al.*, 1999] that address the effective use of RHP information. This type of work should be continued.

A misconception commonly associated with the introduction of a new technology is that the power of the new technology determines success. The reality is that the infrastructure required to support the implementation of the technology is often the determining factor [Steele,

Furthermore, the Grassroots Communication and Environmental Education (GCEE) programme of the RHP is another mechanism for producing tools for water resource managers (namely, how to involve local communities). Development of this should also continue with the primary objective of ensuring the "relevance" (*i.e.* practical usefulness) of the information supplied by the RHP. This should include using the RHP GCEE programme as a vehicle for environmental education and general upliftment.

It is likely that this focus of the NCC (coordination of the development of processes that better apply RHP products) will increase naturally as biomonitoring methods begin to standardise.

4.5 DEMONSTRATING SUCCESS

The "demonstration-for-resource allocation spiral" model has been successfully implemented in the RHP from its inception [Roux, 1999]. Simply put, show potential resource allocators what can be done and they are more likely to buy in. Biomonitoring and how it might be used are not necessarily simple concepts. Acceptance is only likely when resource allocators are convinced that it is in their own interests to get involved.

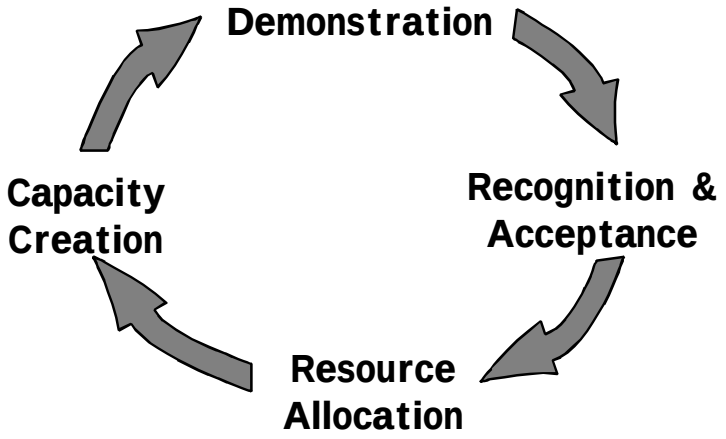


Figure 4.2. The "Demonstration-for-Resource Allocation Spiral" model adopted in the RHP [Roux, 1999].

Results from adjacent areas (even other regions) can be demonstrated to interested parties. Care should be taken to use examples that are appropriate for the type of audience. It is possible that when trying to convey the generic RHP message that individual concerned parties will be unable to "translate" what is being offered into potential solutions for their individual requirements. Therefore, an attempt should be made whenever possible to put yourself in the shoes of each organisation in the audience and to provide that individual organisation with a concrete example of how the RHP will help them only. That is, do the translation for them. Don't assume they can do it.

If good examples are not immediately available, an initial investment in an area may have to be made. This area should be chosen carefully, using criteria that maximise return on investment, such as the following:

3. The greater the local capacity to adopt biomonitoring roles the better.
4. Ideally, local players should reap well-defined benefits from involvement.
5. There should be "real issues" in the chosen area, that is, actual degradation of aquatic ecosystems and many people affected by this.
6. The area should be inherently suitable for demonstration, that is, the results should have a significant impact on those ultimately intended to be brought on board.

4.6 GENERAL COMMUNICATION

A useful document has been produced by Manyaka, Greyling and Meiring on a wide range of issues related to communication [Manyaka Greyling, 1998]. Amongst other aspects, the document deals with the following:

1. Key target audiences.
2. Key and underlying messages to stakeholders.
3. How to arrange workshops, field demonstrations, open days etc.

4. A draft speech for a dignitary.
5. Crisis communication plans.

This document should be consulted and the ideas implemented and tested. Feedback to those authors on lessons learnt and improvements will be to the benefit of all involved.

As mentioned elsewhere, a grassroots communication initiative is also being developed for approaching and involving local communities.

4.7 DATABASE MANAGEMENT

The Vision 2005 hierarchical model allows for considerable flexibility in local and regional programmes. It specifically acknowledges that each local, regional and national agency has its own priorities (which may not coincide significantly with the level above it). Furthermore, it is obvious from this model that for the national level to benefit from these possibly disparate regional and local programmes, an efficient mechanism for data transfer upwards must be available. It should be assumed that the local database manager will not be particularly motivated to go to the trouble of data transfer to a higher level. Therefore, it is suggested that it is of the utmost importance that attention is given to efficient data transfer between databases. It must be ensured that this is as simple as possible so that the local database manager does not regard this task as a major intrusion on his or her time (for little apparent gain).

Ways of rewarding local programmes for supplying their data upwards into the system should be investigated. Obvious ways include (a) supplying them with copies of regional or national reports that use their data and (b) explicit acknowledgement of their contributions in such reports.

The NCC should define the exact degree to which biomonitoring can be applied “locally”. It needs to take account of the apparent conflict between being a “national” programme requiring “local” commitment of resources because of limited national funding. Furthermore, a series of examples should be compiled (that can be used for “demonstration” purposes) of how biomonitoring can benefit local agencies.

Consistency in biomonitoring reports is likely to depend heavily on the capabilities of the database management system. Careful thought should be given to the choice of appropriate icons that communicate the appropriate messages and that can be conveniently incorporated into standard reports (*e.g.* maps) issued directly from the software.

4.8 CREATING SUSTAINABLE REGIONAL CAPACITY

4.8.1 Committed Provincial Champions

The demands of implementing the RHP in a region are significant. A single person who can drive implementation in a region is essential. The ideal person is one who not only has a personal commitment to getting the job done (i.e. personally gets something out of it) but also has superiors who formalise that commitment in a job description.

A survey of the current provincial champions revealed that the percentage of time being spent on RHP implementation varied from 10 to 40%. The average was about 25%. This should perhaps be regarded as a minimum amount of time required for successful implementation.

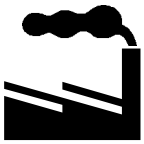
4.8.2 Demonstrating to Regional Concerned Parties

It is the primary responsibility of the Department of Water Affairs and Forestry to implement a national biomonitoring programme. It is also their responsibility to identify other structures with similar responsibilities. The involvement of local and regional concerned parties is likely to be to the advantage of all involved.

Specific water management institutions may already exist in an area. If so, then they may well have interests that overlap with those of the River Health Programme. Alternatively, such organisations could be established so that one of their functions is the implementation of biomonitoring in the area.

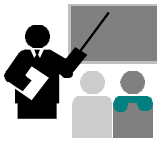
In general, a guiding principle is to identify those local concerned parties that would have an inherent vested interest in a monitoring programme. That is, their involvement in the local programme would be a “win-win” situation. However, whenever possible, results should be demonstrated to any organisation that is approached. For example, actual case studies or reports (like the State of the Crocodile River Report) can be presented.

There are many kinds of organisations that can be considered as regional or local concerned parties. These include catchment management agencies (when these are ultimately created), water user associations, water boards, water forums and conservancies. The functions of many of these have been described generically elsewhere in this document.



A number of major industries in South Africa take a pro-active role in ensuring (and demonstrating) minimal impacts on their local environments. By adopting a biomonitoring programme they demonstrate a social and environmental responsibility. The following are a few examples: ISCOR funds extensive biomonitoring in the Empangeni area, Kwazulu-Natal. Mondi Forests, SAPPI and SAFCOL are jointly funding biomonitoring across forestry areas in South Africa.

4.8.3 Training



Appropriate training (of biomonitors and trainers) is critical for a sustainable capacity. This is not only necessary for continued growth of the RHP but also to ensure that an unexpected loss of a pivotal person does not suddenly leave an expertise vacuum in South Africa that is not easily filled. It must be ensured that the extensive knowledge of those technical experts that have been responsible for the development of the various methods (*e.g.* for determining indices, choosing reference sites and so on) is captured. This can be done by producing instruction manuals. However, it is also critical that on-site word-of-mouth instruction be carried out whenever possible so that the many nuances of biomonitoring, not easily capturable on paper, are passed on.

4.8.4 Selecting Indices

What should be measured in a biomonitoring programme is determined by a number of factors. The primary one should be the specific requirement of the managers of the riverine ecosystem of concern. (One objective of the RHP is to provide relevant information.) It should also be borne in mind that the RHP is a national programme not primarily aimed at identifying local cause and effect relationships (see section on Vision 2005). Available financial resources and expertise of personnel will ultimately determine the degree of biomonitoring performed. SASS4 (and the associated IHAS) is by far the cheapest and easiest to perform (though does require specialised training) and should be the very least that is done.

A series of biomonitoring protocols (combinations of indices) has been suggested [Uys *et al.*, 1996]. However, methods have evolved somewhat since then (and some have not) and the following possibilities can now be considered.

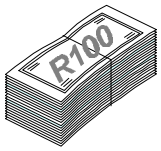
The table acknowledges that SASS4 is generally considered to provide the best return on investment [Uys, *et al.*, 1996]. A determination of SASS should include ASPT and the number of taxa. IHAS has developed from the previously used HAM and HQI and should therefore replace them as the SASS-related habitat index of choice.

Table 4.1. Possible combinations of biomonitoring indices.

Number	Component Indices
1	SASS4, IHAS
2	SASS4, IHAS, FAII
3	SASS4, IHAS, FAII, IHI
4	SASS4, IHAS, FAII, IHI, RVI, GI

It is not being suggested that other indices not be used. However, their inclusion should take account of a need to become as consistent as possible with other initiatives and to move onto new and better indices when these become available. The need for flexibility at local and regional level (while still contributing to the national objectives) is nevertheless acknowledged. This approach of “prototyping” should continue to be applied. Namely, the current version of an index should be applied, accepted and used until such time as an improved version is available [Roux, 1999].

4.9 FINANCIAL CONSIDERATIONS



4.9.1 Overall Provincial Budgets

A concept proposal has been prepared and distributed to potential international donors.

The following presents a provisional budget for RHP implementation in an "average" province. This budget is taken unedited from the concept proposal that has been sent to various potential funding agencies (local and international) [RHP Concept Proposal, 1999].

Table 4.2. Preliminary "average" provincial budgets for RHP implementation.

Task	Rand per province per annum	
Programme plan and design	R	20 000
Full initial rating of selected river sites (all indices)	R	50 000
Sampling equipment	R	55 000
Monitoring visits (selected indices only)	R	70 000
Analysis, interpretation and reporting of results	R	40 000
Training and capacity building	R	70 000
Cataloguing and storage of voucher collections	R	10 000
Quality control and quality assurance	R	20 000
Coordination and project management	R	10 000
TOTAL for one year	**R**	**345 000**
TOTAL for 3 years (Including 10% inflation per annum)	**R**	**1 142 000**

These figures are ballpark values of likely costs per activity and can be used in preliminary planning exercises within the provinces, for example, on deciding on likely concerned parties and donors.

Although provincial champions are encouraged to approach both local and international donors directly, it is advisable to approach the NCC first to ensure that this activity is appropriately coordinated [Scherman P, IWR, personal communication].

The following table can also be used as rough guidance on budgetary requirements of a provincial champion (manhours only). The figures are based on a total of 2000 hours available per annum. The Institute for Water Research at Rhodes University recently submitted a proposal to the Eastern Cape DWAF office for funding of a provincial champion at the IWR. This included an estimate of about **R9 000** per annum for disbursements.

Table 4.3. Provincial champion annual manpower budget range.

% of time on RHP	Rands/Hour			
	150		250	
20	R	60 000	R	100 000
40	R	120 000	R	200 000

4.9.2 Draft Business Plan

A business plan has been produced by Chris Dickens of Umgeni Water. This plan also presented approximate monitoring costs per site per annum for 1998. The following table is based on those costs, though increased by about 15% to take account of inflation. Technician rates have also been raised to R100/hr.

Table 4.4. Approximate monitoring costs for reference and monitoring sites.

	Rands per site per annum			
	Recommended Survey[1]		Minimum Survey[2]	
Survey Cost	Reference site	Monitoring site	Reference site	Monitoring site
SASS	330	85	230	58
HAM	44	44	29	29
RVI	115	115	-	-
Average transport cost @ R1.40/km				
5 km local	21	21	14	14
10 km	42	42	28	28
50 km rural	210	210	140	140
100 km rural	420	420	280	280
Travel time (labour cost at technician rate R100/hr)				
local trip 5 km	75	75	50	50
long trip 100 km	300	300	200	200
Total cost/annum for local site (5 km)	**585**	**340**	**323**	**151**
Total cost/annum for distant site (100 km)	**1209**	**964**	**739**	**567**

[1] The recommended survey is based on 3 samples per annum in late summer (March, April), winter (July, August) and late spring (October, November). The difference in SASS costs are that ALL the biotopes are monitored for reference sites but only ONE for monitoring sites.
[2] The minimum survey is based on 2 samples per annum (autumn and spring).

4.9.3 Potential Donors

A funding guide specifically has been prepared for the RHP [Walmsley and Louw, 1997]. It identifies both national and international donors. It contains contact persons, areas of interest of the various funding agencies and proposal protocols. International agencies considered include AUSAID, British Aid, DANCED, Dutch Aid, Finnish Aid, Global Environment Facility (GEF) and Swedish Aid. This document can be used to identify the most appropriate possibilities for funding aspects of either provincial or national implementation initiatives within the RHP.

4.10 NATIONAL COORDINATION

4.10.1 Issues facing the National Coordination Committee

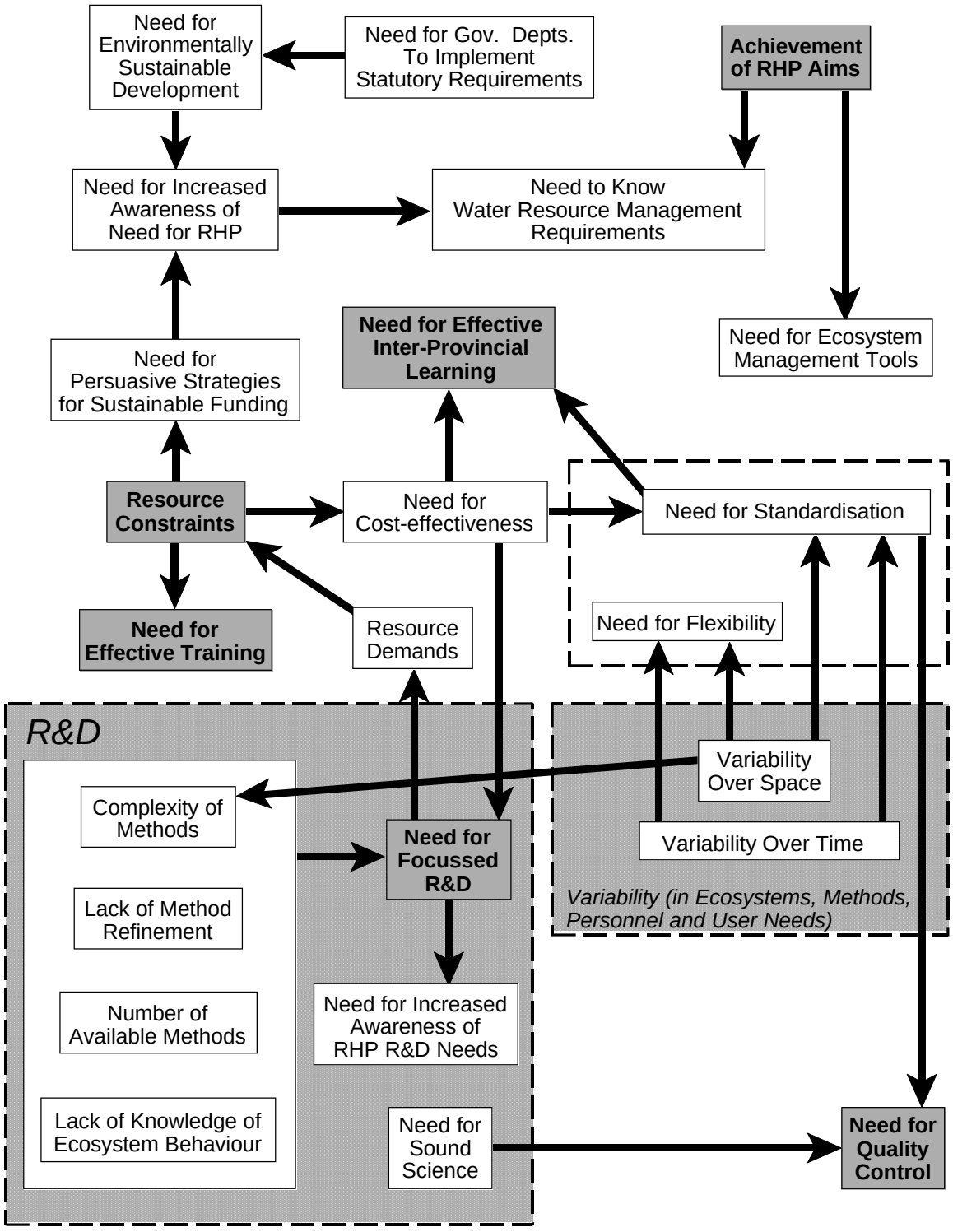
The issues facing the National Coordination Committee (NCC) have been examined briefly in the light of the above vision and proposed road ahead. The analysis has been restricted to an identification of the national issues, a presentation of them in a systems model diagram and a brief discussion.

*The **systems model** diagram identifies the most important (quantifiable) issues and their interactions though is a considerable simplification. An arrow between issue A and issue B should be interpreted as meaning "issue A drives (or results in) issue B". The issues are not formally defined in the text nor are the interactions described in detail. (A proper analysis would require this.) Nevertheless, the diagram can be used as a basic thinking and discussion tool.*

Variability in space and time (of ecosystem, methods, people and user requirements) is probably the most fundamental issue driving (actually, complicating) most activities in the RHP. The fact that this issue is so pervasive almost suggests that there should be a conscious effort in all activities to counteract this. That is, when given the opportunity to simplify, do so, rather than complicate.

Focussed R&D is essential. It is the object of an index to simplify. The newly proposed aim of the RHP is that scientifically relevant information is provided. The natural inclination of many scientists is to complicate (or at least be comprehensive) to ensure that every nuance is accounted for. The challenge for scientists working within the RHP is to avoid unnecessary complication. However, it is acknowledged that in many cases it is necessary initially to examine all aspects to establish relative importance. Once this is known, then the system can be simplified.

National Issues



A good example of how this process has worked well is the SASS4 index. This started (necessarily) in considerable detail. However, this improved understanding, focussed debate and ultimately resulted in a relatively simple method that can be completed on-site. However, a lesson that can be learnt from the development of the SASS4 index is that it is a time-consuming process.

As always, **resource constraints** drive many issues. They create a need for **standardisation** and a need for general **cost-effectiveness**. This in turn drives a need for **effective inter-provincial learning** so that wheels are not reinvented. Funding models (both local and international) should continue to be developed and investigated. Local models should be based on a sound understanding of the real needs of local organisations.

The need for **standardisation** is obvious. However, there is also a need for a degree of flexibility. At face value, these seem contradictory. However, they need not be. The challenge will be to introduce a degree of standardisation and quality control that is sufficiently flexible to meet the varied needs of all participants.

The need for standardisation and a need for sound science both drive an urgent need for **quality control**. Related to this is ensuring that “fly-by-night” biomonitors are avoided by creating a network of certified biomonitors and quality auditors.

It has been suggested by some current provincial champions that the NCC meetings provide a useful mechanism for **inter-provincial learning**. This is an important issue given the need for cost-effectiveness, standardisation and general complexities of biomonitoring in South Africa at present.

Good **communication** is critical at a number of levels though not appearing explicitly on the systems model diagram. It helps address the need for increased awareness and acceptance of the RHP, facilitate inter-provincial information transfer and learning, maintaining a corporate image and by providing a general secretariate for national coordination.

4.10.2 Roles of National Coordination Committee

It is proposed that the roles of the NCC as a whole remain essentially unchanged for the immediate future. It has been, and should remain, the role of the NCC to coordinate biomonitoring in South Africa on all levels, in a way that takes cognisance of limited financial and human resources. It must act in an advisory capacity, both coordinating and guiding the whole spectrum of interested parties from researchers to ultimate users of the information generated. However, primary responsibility for implementation remains with the provinces.

Research activities are being largely driven by temporal and spatial variability and the fact that indices are not yet standardised. Coordination of continued method development is essential. As methods ultimately become more standardised, the NCC will need to shift its focus from such R&D to improved management techniques for using the information emanating from the RHP [Roux, 1999]. This shift will be essential if biomonitoring is to achieve a “commodity market” status in five years. It has appropriately already begun.

The NCC must continue to match the minimum requirements of the RHP (as a national

programme) with local and regional needs and balance this with available resources and capacity.

4.10.3 A National Coordinator

It is proposed that a single person act as a national coordinator. The rationale behind this is as follows.

All the roles of the NCC identified above are important as are those identified for individual portfolios on the NCC (described below). Furthermore, many require specialist expertise. The NCC has over recent years identified a number of tasks that are important to national coordination and regional implementation of the RHP. Often these tasks have been assigned to individual members of the NCC. However, all members of the NCC have full time jobs. Although some have biomonitoring officially on their job descriptions, some do not. Even if they do, capacity and time are often limiting. This has meant that many of these tasks have not been completed. There has also not been any specific mechanism in place that ensures that such tasks are actually completed on time, on brief and on budget.

To address these problems, a national coordinator should be appointed. The exact functions that this person could perform are likely to be determined by that persons' expertise, experience and the available budget. The following ideal job description is proposed which can be tempered by these issues. It is proposed that this person have at least six months per annum full time on this task. Given the considerable rate of change at present, the contract and job description should be reviewed annually by the NCC.

This model assumes that competent people are overworked. It acknowledges that the NCC is comprised of competent people. It proposes that they bring this expertise to annual meetings. However, it attempts to remove as much national coordination responsibility as possible from these people by putting it on the shoulders of a single national coordinator.

The candidate should ideally be an aquatic ecologist with management experience. The candidate should be self-driven, have good people skills, be a strategic thinker and a competent communicator (both verbally and written).

The buck stops here.

This person should be an "executor" (of the various management tasks required for successful implementation of the RHP nationwide) not a "delegator". This person will have the primary responsibility of tasks such as those listed below in consultation with the relevant experts. In this way, the resources required from already overworked NCC experts are minimised to that required to download and capture their critical contributions (typically in one-on-one meetings or telephone conversations). Actually capturing this information (in reports, proposals, and so on), presenting it properly and disseminating it is the job of the national coordinator. The

candidate will ultimately be *au fair* with all aspects of the RHP.

The following are typical tasks that should be undertaken by the national coordinator.

1. Analysis of current examples of how biomonitoring is benefiting local organisations. From this should come (a) a series of examples that can be used for demonstration purposes and (b) a better understanding of how other local organisations around South Africa can be approached and convinced that it is their interests to adopt the RHP.
2. Coordination of training countrywide. This should include compiling an expertise register that facilitates the drive towards a biomonitoring commodity market. The national coordinator should also ensure that training courses are executed in a standardised way and that the latest information is presented.
3. Coordination of quality control (closely allied to appropriate training).
4. Development, implementation and coordination of funding models both local and international. The national coordinator should be the primary contact person on international funding proposals.
5. Coordination of continued biomonitoring index development.
6. Chairmanship of the NCC.
7. Active and in-depth involvement with specific provinces experiencing difficult problems to assist in regional implementation.
8. Ensuring a smooth changeover to a new national coordinator (for example, in the case of resignation).

The national coordinator should be appointed by and report to the NCC.

4.10.4 NCC Composition

The NCC should comprise the portfolios in the adjacent table. This assumes that a national coordinator is appointed who has the executive capacity for tasks such as coordination of funding, quality control and training. Until this time these issues may need to be formally executed by people with appropriate expertise. Indeed, it may be preferable that these people remain on the NCC after the appointment of a national coordinator but then only in an advisory (not executive) capacity.

Table 4.5. Proposed composition of the National Coordination Committee.

Portfolio	NCC-related Tasks
Executive Capacity	
National Coordinator	Chairmanship of NCC and ExCo meetings. Coordination of training, quality control, development and implementation of funding models, index development and execution of *ad hoc* tasks deemed important by the NCC. (*The buck stops here.*)
Secretariate	Minute taking, documentation distribution.
Three Custodians	Represent interests of DEAT, DWAF and WRC. The DEAT and DWAF in particular should focus on the top-down implementation perspective.
Provincial Champions	Bring region-specific information to the twice-yearly NCC meetings to facilitate information-sharing. This could include annual reports on regional successes (and less frequent State of Environment reports) that can be used by other provincial champions to demonstrate results to prospective donors.
Communication Officer	Optimise communication-specific perspectives. Produce the annual reports for provincial champions in a format that is appropriate for demonstrating success to donors in other provinces. Produce regular newsletters. Maintain corporate image. Ensure that all provincial champions are aware of what can be offered in respect of communications.
R&D Officer	Ensure focussed R&D. Annually report on R&D gaps, current activities, prioritise research needs.
Advisory Capacity (*ad hoc*)	
Scientific specialists	Provide specialist input and perspectives in particular research fields to facilitate ongoing focussed R&D. Input will primarily be to the R&D Officer and National Coordinator.
Special members	Representatives from other national programmes with whom mutually beneficial relationships could be formed should provide different perspectives, mechanisms for inter-programme learning and ideas on closer collaboration.