ADOPT-A- RIVER PROGRAMME PHASE II: DEVELOPMENT OF AN IMPLEMENTATION PLAN INSTITUTIONAL ASPECTS/ GOVERNANCE STRUCTURES

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DOCUMENT INDEX

Reports as part of this project:

Report number	Report Title
N000000RET0109	Adopt-a-River Programme Phase II: Development of an Implementation Plan. Inception Report
Authors	Y. Burger, P. de Souza, A. Neumann, J.N. Rossouw and L. Rossouw
N000000RET0209	Adopt-a-River Programme Phase II: Development of an Implementation Plan. Database of stakeholders
Authors	A. Neumann
N000000RET0309	Adopt-a-River Programme Phase II: Development of an Implementation Plan. Monitoring Models
Authors	L. Rossouw
N000000RET0409	Adopt-a-River Programme Phase II: Development of an Implementation Plan. Institutional aspects/Governance Structures
Authors	Y. Burger
N000000RET0509	Adopt-a-River Programme Phase II: Development of an Implementation Plan. Water Resource Quality Situation Assessment
Authors	H. Hendriks and J.N. Rossouw
N000000RET0609	Adopt-a-River Programme Phase II: Development of an Implementation Plan. Manual for Volunteer Monitoring
Authors	K. Versfeld and J.N. Rossouw
N000000RET0709	Adopt-a-River Programme Phase II: Development of an Implementation Plan. Programme coordination manual for National and Regional coordinators
Authors	T. Manxodidi and J.N. Rossouw
N000000RET0809	Adopt-a-River Programme Phase II: Development of an Implementation Plan. Communication Structures
Authors	P. de Souza, K. Versfeld and J.N. Rossouw
N000000RET0909	Adopt-a-River Programme Phase II: Development of an Implementation Plan. Training Material and Training Needs
Authors	K. Versfeld and J.N. Rossouw
N000000RET1009	Adopt-a-River Programme Phase II: Development of an Implementation Plan. Implementation Manual
Authors	Y. Burger, P. de Souza, J.N. Rossouw and L. Rossouw
N000000RE T1109	Adopt-a-River Programme Phase II: Development of an Implementation Plan. Recommendations for the Implementation of the Adopt-a-River Programme
Authors	Y. Burger, P. de Souza, J.N. Rossouw and L. Rossouw

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EXECUTIVE SUMMARY

Context

The role of government in river health is to create an enabling environment where South Africans can and will start to care for their water resources, which is why the relevant portfolio committee prompted mobilisation of an Adopt-a-River programme.

The Adopt-a-River programme will be an umbrella programme, not replacing any existing initiative. The programme's main objective will be to integrate parallel initiatives that are concerned with natural resources and the influence thereon by human behaviour in catchment entities of whatever nature. The programme is planned to support rather than duplicate or detract from existing water resource or environmental management programmes.

Informal activities in the water-environmental conservation arena, regardless of their individual merit, will not be sustainable on a national scale. Coordination of efforts will be of primary importance to achieve the objectives of integrated water resource management. In short, an institutional framework and governance structure for this purpose will be the only chance of successfully implementing a programme such as Adopt-a-River.

As a point of departure it was decided that the Adopt-a-River programme ought to use existing institutions in preference to newly established ones. The conclusion reached by the design team is that from an institutional perspective, a number of parties exist who can effectively participate in Adopt-a-River, by way of their mandate, resources and existing functions.

It is hoped that the programme can draw from the objectives of river ecosystem health, economic growth and co-dependent land and water use principles. The unique contribution of the programme will lie in integrating these aspects while shaping human behaviour that ought to contribute to conserving the earth's vitality and diversity. The main key to shaping behaviour is proven to be knowledge, which will be achieved by means of a strong promotion and environmental education bias to the programme.

Implementation and organisational arrangements

Coordinating the Adopt-a-River initiatives to achieve sustainable results on a national scale is a formidable task. Although the enabling legal instruments do exist, there is no single institution in South Africa with the capacity to host and implement the programme nationally.

The analysis highlighted a serious problem in that many institutions do not have the manpower to fulfil their obligations in terms of their mandate. The current bottleneck is that several regional structures are under severe pressure because they are understaffed and it would not be realistic to further tap from their interface with local authorities, which in many cases exists in name only.

In practice it will be necessary to form partnerships between authorities, agencies, concerned community organisations and the public, to be able to adequately fulfil the roles involved in adopting rivers.

It is proposed that this programme be set up to function similarly to the SADC Regional Environmental Education Programme that is hosted by SADC[1] and implemented by WESSA[2]: A full time national programme manager has to be employed to coordinate all activities of an Adopt-a-River nature in all provinces. It is envisaged that at the onset there will be only one person on the team. In other words, there will not be any administrative or support staff until such time that there is more than mere interest in the project. The work load will dictate the pace at which staff will be appointed to the programme at national and subsequent regional levels. What this means is that at the stage when only single rivers in a few provinces have been adopted, there will be no provincial or regional layers in the structure. The first pilot rivers will have to be nationally coordinated by a single person and later a centralised team, until such time as the intermediate layers in the structure are warranted by the number of adopted rivers that have to be coordinated by the team.

A national programme manager is necessary to coordinate all activities of an Adopt-a-River nature on a full time basis. The Adopt-a-River implementing agent has to unlock access to information, expertise and resources that may be required, and provide managerial guidance where needed. It will be imperative to have a dedicated, full time champion at national level for the Adopt-a-River initiative from the onset of the programme, even if there theoretically is only one river project on the initial list. The tasks that have to be performed cannot be integrated from any other than the top level where the ability exists to see the full picture of an integrated natural resources management programme.

It would not be prudent to tax the DWA Regional offices in their current form with additional workload from the Adopt-a-River initiative. To launch and sustain this programme in the regions need much more implementing capacity than available from existing institutions alongside their normal duties. Procurement of additional resources with the necessary capacity and skills would be imperative, failing which a dedicated implementer body will be needed to perform outsourced functions. It is important that regional offices of national departments are part of the learning and receive formal feedback, but these should not be made responsible for execution of the Adopt-a-River programme.

An experienced individual should be tasked to mobilise institutional and community stakeholders, a well as potential sponsors and patrons before launching a pilot along a specific river reach.

[1] Southern African Development Community
[2] Wildlife and Environment Society of South Africa

NOTE

Catchment Management Agencies would have been a logical choice as implementer for the Adopt-a-River programme, since the role and responsibilities of Adopt-a-River implementing agents are included in their mandate. This mechanism, to oversee water related activities according to the policy, is however in its infancy and the phased implementation means that no more than half a dozen of these bodies have been established to date. The timeframe for having all 19 areas fully functional makes it impractical to wait for this agency to support and implement Adopt-a-River initiatives.

Volunteers vs paid workers

It has to be borne in mind that the overseas models that heavily rely on all tasks to be executed by volunteers may not be replicable and sustainable in South Africa. South Africa has a different geographic and demographic profile to America, Canada and Australia that successfully implemented Adopt-a-River type initiatives. The population of South Africa is very young compared to the populations of the developed world – one third of South Africans are under the age of 15 years and only 7% over 60 years of age.

Involving the public, although desirable from the perspective of community education and behaviour change, comes with risks and has to be carefully considered. Nonetheless, stakeholder involvement is in keeping with South Africa's constitution and cooperative engagement at local level makes or breaks long-term sustainability of any initiative.

Much can be achieved with lay labour and with volunteer inputs, however, the focus and time frame of a specific river's solutions and the candidates on the river banks will determine to what extent volunteer labour can be a viable resource. Undue emphasis on volunteer inputs would be naïve and not in the interest of the sustained long term health of any river: Volunteers often group themselves to align with their sense of purpose. It will only by coincidence be possible to have a whole river adopted by volunteers who share a common goal and want to cooperate with DWA and each other (rather than sensationalise their plight for example in the media)

During the pilot phase the advantages and limits of involving unpaid vs paid labour on the tasks of Adopt-a-River will have to be thoroughly tested.

However, it has to be reiterated that volunteer positions in the South African context are limited to river face activities. Relying on volunteers at management level, even officials whose paid employment can be extended to include Adopt-a-Rivers responsibilities, should not at all be considered during start up of the programme if implementers are serious about the sustainability of the programme.

Partnerships for implementation

The Adopt-a-River programme would benefit from working with other initiatives that have a proven track record on environmental programmes that involve the users. Working for Water,

WESSA and the Plastics Federation of South Africa have amongst others offered to be involved in the pilot phase and to make available their expertise and structures.

To bring on board the experience and resources of Working for Water will achieve great synergy in natural resource management and may concurrently meet objectives of social upliftment. It is proposed that official links are also formed with environmental awareness programmes of the Plastics Federation of South Africa (e.g. PETCO, PSPC, Buyisa-e-bag and Enviromark)[3], the Wildlife and Environment Society of South Africa and established Friends of groups.

The learning on pilot projects will be greatly enhanced by longstanding experience of the above programmes. It will be possible to draw on additional expertise and resource base, better focus resources and potentially reach a wider audience in this manner.

Training is perceived by many school leavers as an opportunity to later get into formal employment. Developing accredited and certified training modules would be beyond the budget of any fledgling programme. The above programmes all have an established environmental education component, and it has to be explored to what extent the initiatives can and are prepared to support each other. Capacity building for workers and volunteers strengthens any partnership activities and would enhance the sustainability of the different environmental programmes of the partners, individually and collectively.

In the Adopt-a-River programme design a greater focus was placed on public awareness, than on actual monitoring and the results thereof. Therefore DWA Directorate Communications has to be involved from the onset of the pilot phase.

Candidate rivers to pilot the programme

It is recommended to very carefully select a few pilot projects where the capacity exists to test the parameters which will shape the future of the programme. To embark on several initiatives with a pilot river project in every province, is probably too ambitious unless the specific goal is to purely achieve awareness with the first series of pilots.

Ideally the programme ought to start off with rivers where behaviour change by the public on the river banks will make a visible positive difference in a short time span, once the people have been sensitised to the link between their actions and the state of the river downstream. Complex situations, where pollution by industry and farming or serious competition exists for resources, could be added to the programme once it is fully fledged.

The river reaches below have been identified by the study team and primary stakeholders as the first candidates for piloting Adopt-a-River implementation, congruent with the objectives of awareness and behaviour change and visible outcomes in a reasonable period.

[3] www.plasticsinfo.co.za

- Vaal River – Vaal Barrage and the Middle Vaal River
- Lower Klip River in Gauteng
- Mtata River near the city in the Eastern Cape.

Funding

The need for this Adopt-a-River programme was identified in parliament. The Department of Water Affairs & Forestry was appointed to design the programme, but once the programme is functional, it will be spanning several departments and jurisdictions and it would be unwise to have the programme contend for resources with other priority projects inside a department on a year-on-year basis.

To create a solid foundation for Adopt-a-River activities, stable funds from diverse sources have to be ***dedicated*** to the cause. Spontaneous allocations of unpredictable amounts are not conducive to a sustainable initiative. Adequate funds for the Adopt-a-River programme are a prerequisite, and it would be near impossible to implement this programme without dedicated funds.

Candidates for host institution are the Departments of Water Affairs, of Agriculture and of Environmental Affairs. Pending final inputs from the parties, it is assumed that the Department of Water Affairs, who has championed the design phases of Adopt-a-River, will continue as programme host, and will find a suitable national implementer or coordinator, in the form of an agency that would be in a position to support the national programme from the pilot stage.

It is proposed that funds for management and execution of the programme are ring-fenced at national level. An annual allocation by the champion/host institution, for example the Department of Water Affairs, to establish, guide and track the programme for at least five years, will be required. Funds also need to be earmarked for research and training during that five year period.

The policy and law elements are in place to select a host institution and it is assumed that procurement of an institution to function as implementer can be formalised in 2009 to achieve start-up of the pilots according to plan.

The national programme coordinator (and, eventually implementing team) should have funds to coordinate and administer the programme, provide strategic guidance to the programme, be a contact point and follow up mechanism for queries, perform marketing and fund raising, develop programme publicity and training material, and also ensure linkages with relevant national programmes. The national implementer institution has to apart form resources to market the programme and create awareness, procure a national programme coordinator, set up a resource centre and staff and standardise procedures and communication channels for the above and the pilot projects.

The provisional estimate at this stage of the funds needed to orchestrate the Adopt-a-River with a full time national coordinator, in the above manner, excluding funds for project level work, is R3 million per year.

This estimated amount assumes that a single pilot river will be managed in certain provinces at the onset of the programme, and that there is no immediate need for any intermediate structures at regional level until additional river care teams come on board in each province.

For a period of five years the coordinator/implementer function will cost say R17.1 million (escalation included). The rate at which the programme grows during these five years will determine whether the structures are expanded and what the associated costs will be after this period. Any budget estimate beyond the start up phase of five years will therefore be merely speculative.

The pilot projects are expected to cost about R 700 000 each per year. Assuming there will be four distinct pilots in four geographic locations, which can all be orchestrated from a central location, the budget will be about R2.8 million per year. This number can be fine-tuned once actual pilot river selection has been finalised. It is also likely that economy of scale and savings can be achieved with the resources of Working for Water if the pilot sites are wisely chosen.

For two years the budget for work at pilot river level will be no more than R5.5 million. Part of the responsibility of the national coordinator(s) will be to mobilise funds for activities at regional level, hence it should not be necessary to budget for project work after the second year.

After two years there would be no need for national funds to sustain any of the original pilots. The projects would be self funding if they were labelled successful. If the pilots failed after this time, there would be no reason to continue with that pilot. The resources can be better applied elsewhere.

It might in rare cases be necessary to have seed funding to assist priority needs on projects at the start of the programme, in the same manner as with the pilot rivers. It would however be prudent to support project teams with finding their own sponsors rather than the Adopt-a-River programme being their actual sponsor, if at all feasible. The budget for the national programme should therefore preferably *not* include operating expenses to rehabilitate individual rivers, setting a precedent that cannot be sustained should be avoided.

Launch

It is recommended that Adopt-a-River be launched in the pilot regions in a visible manner and with high media involvement.

An experienced individual has to be tasked to mobilise institutional and community stakeholders, a well as potential sponsors and patrons before launching a pilot along a specific river reach.

Roles and responsibilities as proposed in the attached table *Proposed Institutional Framework and Government Structure: Roles and Responsibilities allocated to Roleplayers at start-up and with progressive expansion* should be negotiated and agreed amongst roleplayers. It is foreseen that adjustments of roles may be warranted in certain regions or perhaps types of projects, which would become evident as implementation progresses.

A road show should be designed by DWA Directorate Communications. Components of mini-SASS[4] may be of interest to communities who want to systematically explore the health of their water resource and river bank ecology.

A star grading for the visual aesthetics of a river and its immediate environment could be the focus of a competition: for example towns are nominated country wide for maintaining the river reach adjacent to the town at say a 3- or 5-star river category etc. Research would be needed to quantify yardsticks.

Win-SA[5] may be useful as an instrument to communicate progress on the programme. WESSA may be amenable to providing data and resource support to Adopt-a-River. It has to be ascertained if there is a manner in which the public could have access to resources at WESSA. Currently the organisation provides information to paid membership. There may be merit in exploring a lesser, group membership with limited access via the Adopt-a-River programme.

Data collection and monitoring

Effective management of data generated in the process of monitoring at river sites will add a significant load to the institutional structures.

Identifying a clear purpose for data collection or other forms of monitoring is a first and very crucial step for an effective monitoring programme and should be based on an analysis of issues affecting the catchment and/or water body. Data collection has to meet a specific objective and be part of a bigger picture. Objectives have to be very specific before adoption of a river reach – e.g. river clean ups or during winter months, or until there no longer are visible debris in the water, or for the R80 000 donated by the community. Data or measurement will support measuring achievement of the objective.

Depending on what the data is used for, in certain instances it may be more important to have ready access to approximate values than to have to wait weeks for the verified information from rigorous quality control that would meet prescriptions of formal data receptors. It would follow that groups whose primary purpose is education and constituency building ought to adopt simple, easy to use assessment methods. These roleplayers are unlikely to justify any stringent quality assurance plan that would be prescribed for national data bases.

[4] WRC laymen's identification of invertebrates

[5] Water Information network South Africa

If a serious need for scientific records exists at a site, it may be appropriate to motivate extending the national monitoring programmes to include this site, rather than start informal monitoring by volunteers under Adopt-a-River.

Costs of monitoring generally far outweigh the benefits, except where the end-goal is to raise awareness of local residents of their behaviour that adversely affects water quality. School children are also very receptive to principles experienced in a hands-on manner.

Monitoring as a tool to motivate school children

Informal monitoring has a potentially important function only peripherally related to data collection, storage and reporting. It is vital that achievements of the Adopt-a-River programme are published. Data collection could be a tool to interest the community, for example water sampling with simple kits by small children, which largely does away with the need for rigorous quality control and formal analysis to qualify for inclusion in formal data receptors.

In general groups can benefit from learning from other such groups, and sharing their own experiences. It would also add to the sense of achievement, when these groups see their successes published. Sharing information via public channels, amongst others websites, is an effective tool to creating awareness and transferring skills. Since not all groups have access to the necessary infrastructure, lower tech communication channels and face to face contact have to also be maintained.

The medium of sharing knowledge will depend on the audience and although information shared may be essentially subjective and not quantitative, the main objective of awareness and behaviour change would be achieved. Involving the youth in monitoring or clean up activities, is an opportunity for hands-on education in best practice at an impressionable age. Certificates of attendance will be a great motivator for even high school participants.

TABLE OF CONTENTS

Page No.

Publications that may be useful for further information on the legislation, policy, conservation management, access to information and latest guideline documents from the Department of Water Affairs and its sister departments, pertaining to Integrated Water Resource Management, are listed in *Guidelines for the Development of Catchment Management Strategies, DWAF 2007: Appendix 2.*

ADOPT-A-RIVER PROGRAMME DESIGN COMPONENTS

1. DEVELOP AN INSTITUTIONAL FRAMEWORK AND GOVERNANCE STRUCTURE

1.1 CONTEXT OF THE USE OF RIVER AND OTHER SURFACE WATER RESOURCES IN SOUTH AFRICA

Sustainability of South African water resources is guided by several policy and legal frameworks, embodied in the National Water Act No 36 of 1998. An underlying theme to post-democracy policy reform in this country has been to decentralise governance and to have decisions regarding local resources primarily made at the local level.

The different levels of government each have their own roles and responsibilities with respect to managing natural resources. National government has the responsibility to develop and implement national policies, congruent with the constitution. Provincial government implements national legislation at the provincial level, and in order to be able to do so, each province derives its own provincial policies. It is, amongst other tasks, the responsibility of local government to promote a safe and healthy environment, and encourage community involvement in issues of governance. In the process inputs have to be canvassed from traditional leadership, statutory bodies and local development platforms, in order to achieve equitable resource allocation and to derive norms and standards for access to resources and maintenance of healthy ecosystems.

Social interaction and community rules have therefore taken centre stage and government regulation progressively more started officially incorporating cooperation with Non-Government Organisations and private entities, which can and do support or perform roles traditionally resting with government.

Responsibility for water resource management has for example been devolved to Catchment Management Agencies, each functioning in one of 19 Water Management Areas in the country. River catchment forums and water user associations participate in subcatchment or smaller spatial entities.

A variety of roleplayers take part in these forums, not all equally experienced in the management of natural resources. Ideally, the local community or users of any resource have to be knowledgeable about the water resource and its interface with other resources. In practice, the day to day use of resources is often subject to long standing behaviour that might stem from historical positions of power or from ignorance, rather than from knowledge about the consequences and future costs of associated damage to the resource.

In southern Africa, it would be prudent to, as part of water resources management, also take into account spiritual beliefs and practices that imply a level of stewardship of natural

resources[6]. Communities who have a longstanding relationship with a river in many cases have entrenched rituals that closely match modern environmental management and impact mitigation principles.

In situations where local approaches are driven by the need of the population to survive, however, common practice may be in conflict with statutory approaches which almost by definition take a longer term view, with sustainability of the resource as the point of departure. Marrying remote jurisdictional and regulatory boundaries with the type of settlement patterns, living practices and perceptions, which are dictated by conditions of competition for resources, often does result in confusion. Cognisance has to be taken of the fact that indigenous people lived in harmony with resources in the past. The resources are however currently put under pressure by unprecedented human population growth and other factors.

An initiative to create awareness amongst all South Africans of the need to care for our scarce and deteriorating water resources and to facilitate the public's participation in the protection and management of these resources was raised in Parliament in 2006. Parliament wanted to know from officials of the then Department of Water Affairs and Forestry whether South Africa's rivers are healthy and fit for use. Some Members of Parliament, as a sign of their own commitment, offered to adopt certain rivers and to act as patron for that river. The idea was that setting an example would foster public awareness and trigger participation in the protection of the quality of the water in South Africa's rivers.

This was the birth of the Adopt-a-River programme in South Africa. To give effect to the initiative, the Minister of Water Affairs & Forestry requested that a formal programme has to be built towards protection and management of South Africa's rivers with active contributions by the public.

The reasons why rivers need to be "adopted" are specific to each river reach. An adverse combination of land use and location of the river system or wetland, is the most common reason why rivers are under stress and would benefit from such adoption[7].

In an ideal world, surrounding businesses and residents will be willing and able to assist with restoring a river or water body to its sustainable state. However, in many cases the expertise and resources exist elsewhere, and cannot readily be mobilised. The visible commitment of concerned citizens or volunteers who are prepared to assist with aspects relating to the natural environment, is unfortunately often issue driven. Adopting a river purely to maintain its attractive status quo, does not generally appeal to the public at large for any length of time. Proactively maintaining a desirable status quo would however have been ideal from the perspective of sustainability and optimised use of resources.

[6] Work by Penny Barnard from Rhodes University, quoted in WRC Report TT 328/08 by S Pollard and T Coussins, p29, Community-based governance of freshwater resources in Southern Africa

[7] Human related impacts in the uMgeni River for example are faecal contamination from peri-urban areas; algal growth in dams resultant from high nutrient loads; soil loss and bank destabilisation following from settlement, and too high water use associated with alien vegetation and afforestation

It is therefore almost by definition that stakeholders who do embark on an initiative to improve the quality of a river reach, would have a common vision of what needs to be achieved. A frequently encountered objective in modern urban society is to manage security of the riverine area. There may be an initiative to develop an area into a recreational green strip with trees and facilities[8] to serve exercise and walking needs of the public. Other projects relate to eradicating alien vegetation[9], improving the habitat for a specific species which may be under stress[10].

The Adopt-a-River programme was initiated to raise awareness amongst the general public on the social and environmental role of rivers, dams, estuaries and wetland areas, as well as aquifers. It has been proven that in-depth understanding of the interdependencies between humans and the resources in their immediate vicinity, gradually encourages the type of behaviour that leads to improvements in the natural and social surroundings. Ironically, it has empirically been established that in areas where residents are prepared to be involved in river clean-ups, such clean-ups after a while are almost superfluous, because littering and other hostile land use practices are progressively reduced[11].

Formal river water abstractions, water rights, licensing aspects and effluent control fall *outside* the scope of this assignment. It is assumed that the interface the Adopt-a-River project will have with formal integrated water resource management will be improved knowledge of the issues in water resource protection and of the relationship with user behaviour, which hopefully will foster a sense of ownership of the resource. It is foreseen that one of the consequences of improved public knowledge will be that industry and farming may be called to task on practices that result in visible adverse impacts on water resources[12].

1.2 RATIONALE FOR AN INSTITUTIONAL FRAMEWORK/GOVERNANCE STRUCTURE

The word '*governance*' conventionally referred to government systems - preoccupation with law, formal policy structures and bureaucracy. More recently, the definition of good governance has expanded to incorporate practices and management strategies,[13] which imply fairness and sustainability, even ownership, by any independent authority.

Authority can be located at a number of levels – where good governance of natural resources according to the authors may reside at community/user level, or in partnership with local government or as part of an intersectoral structure. Governance in other words describes

[8] Keysers River Restoration Project – industry driven

[9] Die Oog Partnership Project – community driven

[10] Friends of the Silvermine Nature Area encouraged birds back to the artificial wetland as part of rehabilitation of the river

[11] The Friends of the Liesbeeck River started 15 years ago - residents wanted to clean up the river which was polluted and litter-strewn

[12] Mariette Liefferink, Federation for a Sustainable Environment, 2007

[13] WRC Report TT 328/08 by S Pollard and T Coussins, p7, Community-based governance of freshwater resources in Southern Africa

"*relationships between people and the rules and norms that are set up to guide these interactions……include collaboration".*

A governance structure/institutional framework in the context of this study is an attempt to list the policy, management and execution components that any Adopt-a-River programme would have to support. Subsequently it is necessary to identify the associated functions, roles and responsibilities that stakeholders will have to perform.

Activities to promote the aesthetics or condition of a river cannot be performed in isolation as rivers are not closed ecosystems. Everything that happens in a river catchment could have downstream effects. In Australia[14] it has been the experience that education is a fundamental element of environmental management, and that by changing attitudes and values, behaviour change can be achieved. Cultural expectations, historical practices and environmental degradation should be addressed, not only the symptoms that ultimately manifest in poor quality of river or estuary water.

Shared responsibility and collaborative action can be very effective, and participation by the community is vital to successful environmental management. Monitoring of water resources by the community has been found to facilitate environmental action.

In practice however, community-based management of natural resources has proven to focus on *management* of resources, i.e. implementation of actions in accordance with an agenda. This is in contrast to other levels of governance, where emphasis would be on the role of norms, rules and expectations that shape behaviour for the common good[15] and longer term vision.

A recent study[16] to quantify the need to improve the capacity of human resources in the water sector highlighted the situation that training in the water sector is almost exclusively directed at the operational level. A gap exists as far as 'enabling environment' is concerned. Outside the formal environment, more potential needs to be mined and therefore the competency of human resources needs to be supplemented, which means socio-economic, political and demographic parameters have to be better aligned with each other by appropriate interventions or incentives. Improved information sharing and knowledge alone will not effect the desired behaviour changes, since group values and economic realities also play an important role in behaviour.

Ad hoc activities of a water-environmental conservation nature, regardless of their individual merit, will not be sustainable. Coordination of efforts will be of primary importance to achieve the objectives of integrated water resource management. In short, an institutional framework and governance structure for this purpose will be the only chance of successfully implementing a programme such as Adopt-a-River.

[14] Waterwatch Australia website

[15] WRC Report TT 328/08 by S Pollard and T Coussins, p7, Community-based governance of freshwater resources in Southern Africa

[16] WRC Report TT 306/07 by Afrosearch and Hlathi Development Services, p16, Assessment of Training Programmes and Capacity Needs for the Water Sector

In South Africa the incentive has existed for a long time to formalise water resource management, because of the scarcity of water resources. It would be less imperative to equitably share any resource that exists in abundance. South Africa already has several very successful initiatives to measure and manage the quality of its surface water (and eventually groundwater) resources[17], the most prominent being:

- **Monitoring Programmes**

Water resource monitoring involves reporting of the quality and quantity of water resources in accordance with guidelines and procedures for monitoring and assessment of water resource quality. National monitoring programmes include the National Microbial Monitoring Programme (NMMP), the National Eutrophication Monitoring Programme (NEMP), the National Chemical Monitoring Programme (NCMP), the National Toxicity Monitoring Programme (NTMP) and the National Aquatic Ecosystem Health Monitoring Programme (NAEHMP). The latter includes amongst other the River Health Programme (RHP). Other activities include the application of ecotoxicology (ecological risk assessment), the National Radioactivity Monitoring Programme and support for the Resource Directed Measures (RDM) Office in determination and monitoring of ecological reserves. These monitoring activities relate predominantly to surface water quality and monitoring programmes for a whole year are planned in detail, orchestrated by a national manager. Groundwater quality is monitored at public boreholes.

- **River Health Programme** [18]

The Departments of Water Affairs and Forestry, and of Environmental Affairs and Tourism, supported by the Water Research Commission, lead the National Aquatic Ecosystem Health Monitoring Programme mentioned above, colloquially referred to as the River Health Programme (RHP).

The goal of the River Health Programme[19] is to serve as a source of information regarding the ecological state of river ecosystems in South Africa, in order to support the rational management of these natural resources.

The programme measures, assesses and reports on the ecological state of aquatic ecosystems. The aim amongst others is to detect and report on spatial and temporal trends in the ecological state of aquatic ecosystems. The programme primarily makes use of biological monitoring (eg. fish communities, riparian vegetation, aquatic invertebrate fauna) to assess the condition or health of river systems. The rationale for using biological monitoring is that the integrity of biota inhabiting river ecosystems provides a direct, holistic yardstick of the health of the river as a whole.

[17] Literature study of monitoring models as part of this Adopt-a-River Programme
[18] Literature study of monitoring models as part of this Adopt-a-River Programme
[19] http://www.csir.co.za/rhp/

The current Adopt-a-River Programme, being conceptualised under this assignment, would essentially be a building block to achieve human behaviour congruent with promoting healthy rivers. Public awareness, of the type of behaviour that causes deterioration of the water quality in natural water bodies, will be a crucial milestone towards improving the water quality in rivers. The Adopt-a-River Programme is an awareness programme with perhaps peripheral attention to monitoring.

- **Information Management**

As far as existing data repositories and information data bases in the water sector are concerned, lessons can be learnt from a spectrum of programmes and websites. The Water Management System (WMS)[20] and National Information System (NIS) are examples of computer programmes developed for the Department of Water Affairs to support decision-making and to provide the information needed to manage water resources, monitoring and planning information in South Africa. The aim is to have an integrated computer system where Directorates and Regional Offices, with their different mandates and functions, can support each other, and share information and the workload. The outcome is envisaged to be sound information that will enable the Department of Water Affairs to be consistent in its decisions and actions in the management of the country's water resources. The information sharing and decision making part of the Adopt-a-River design is addressed in a separate report on data capture and reporting mechanisms. Suffice it to say here that data quality protocol for interfaces with for example DWA data bases by definition favour scientific approaches and are beyond reach of most communities.

According to the DWA:Policy and Regulation Directorate evaluation of these models, existing national programmes have largely focused on resource status and trends monitoring, whereas growth in monitoring is expected to be elsewhere, namely assessing water and land-based impacts on the resource and managing impacts (in other words monitoring compliance). The mechanisms to achieve this future scenario are authorisations, policy changes, rehabilitation etc. Monitoring will mainly support resource management that will be delegated to lower levels, and will, to a large extent, also have to be done by users themselves[15].

- **WASH Advocacy Programme**

An important advocacy programme focused on awareness as a precursor to human behaviour change, is WASH South Africa. The joint partnership between the Department of Water Affairs and Unilever has seen the WASH Campaign rolled out at schools around the country since 2002, in conjunction with the Vaseline children's television series and radio inserts on the country's vernacular stations. The Departments of Health and of Education also integrated the WASH campaign into their activities.

The WASH Campaign promotes the simple act of washing hands with soap as a means of achieving greater health. Hand washing with soap represents a cost effective intervention to

[20] Literature study of monitoring models as part of this Adopt-a-River Programme par 4.1.6

improve hygiene and prevent more than water borne disease. Proper hand washing reportedly reduces the risk of diarrhoeal disease by more than forty per cent. The international WASH (Water, Sanitation and Hygiene for all) Campaign was launched in response to the United Nations Water Supply and Sanitation Collaborative Council's global advocacy in 2002 to making safe water, sanitation and hygiene a reality for all people worldwide.

It is not in the interest of water management in South Africa in general or in the interest of the Adopt-a-River Programme in specific to create any further additional structures or stand alone programmes. The ***integration*** part of Integrated Water Resource Management is more important than perfect information under any water programme can ever be.

It is expected that the appropriate governance model for an Adopt-a-River Programme will comprise a hybrid between conventional sets of rules, and social forces that shape rights and obligations of users of water resources. In this model both rules and social forces would include the spectrum of formal and informal components.

The institutional structure in which the Adopt-a-River has to function therefore has to:

- Identify and focus on the interface Adopt-a-River will have with its champions and with any related existing structures
- Identify functions already dealt with in current institutions, as well as bottlenecks or weaknesses which may not be adequately dealt with – enhance the functional parts and focus on closing the gaps
- Analyse the potential in practice for partnerships between authorities, agencies, concerned community organisations and the public – in order to pool together implementation capacity. The expected end result is that the whole would be greater than the sum of the parts, where stakeholders share a common vision of the desired future state
- Support rather than duplicate or detract from existing water resource monitoring programmes

It has to be reiterated that :

Any Adopt-a-River programme ought to use existing institutions in preference to newly established ones. A programme that has to build its own implementing capacity will only by chance succeed. Adopt-a-River therefore aims to piece together in a sustainable manner the objectives of aquatic ecosystem health, economic growth, human health and co-dependent land and water use principles. Human behaviour lies at the hub of most, if not all, of these aspects and will be treated as the key success factor in sustainability of the programme

1.3 FUNCTIONS AND RESPONSIBILITIES TO BE ACCOMMODATED IN AN INSTITUTIONAL FRAMEWORK/GOVERNANCE STRUCTURE

It cannot be over-emphasised that integration of Water Resource Management is crucial to the well-being of South Africa's rivers. It is imperative that the Adopt-a-River Programme has to link in with existing water health programmes and not function as a completely new programme, otherwise its contribution will be very thinly spread.

There is a wide range of functions that stakeholders who have an interest in the health of water resources in general, would expect[21] from an institutional framework and/or the implementers of a programme to 'adopt' rivers. At one end of the spectrum, users expect responsibility for preventing and rehabilitating contaminated water resources to lie squarely with government[22] by virtue of its role as custodian of water resources. At the other end of the spectrum, international water health models[23] expect a major part of responsibility for the condition of water resources to lie with agencies equipped to deal with volunteers, and with volunteer monitors.

Distrust of each others' motives for embarking on programmes of this nature is commonly found amongst business and NGO roleplayers. Examples of the typical expectations interest groups have of what a programme agent will have to or want to do[24], are:

- Identify interest groups/potential partners or opposition(!) in the area
- Define a ***common*** vision/objective for the Adopt-a-River initiative for the specific river reach (if potential partners or stakeholders have opposing views, or distrust each other, higher level assistance may be needed)
- Draft a business plan, with budget, responsibilities and milestones
- Identify skills, services and funds required by each initiative to bring a river to its desired state
- Provide funding
- Provide administrative capacity (there is however also a fear of red tape, the downside)
- Fast response to crises such as spillages, predominantly for political gain
- Expected long delays in response where the agency is indifferent to the water condition
- Suspected that agent may promote infrastructure development at the cost of the environment
- In a deteriorating situation, worry that agent would attempt to hide the facts from its constituents (publicity without substance)

[21] Substance of some of the perceptions has not yet been validated

[22] Media reports quoting the letter to various ministers from the President of the Transvaal Agricultural Union in context of Wonderfontein Spruit, 2007

[23] Literature study of monitoring models as part of this Adopt-a-River Programme

[24] Partnerships for Healthy Rivers: A handbook on establishing effective partnerships (City of Cape Town & WESSA, 2006)

At a workshop[25] involving the spectrum of roleplayers who were deemed to be in a position to make valuable contributions during the design phase of the Adopt-a-River programme, attendees voiced their opinion on issues such as information sharing, mutual accountability and responsibility for data accuracy. Lack of capacity/support needs and communication lines and monitoring in rural areas were identified as areas of concern.

The design team explored synergy that could be obtained from links with Provincial Water Sector Forums, the River Health Programme and other national monitoring programmes, Catchment Management Agencies, etc.

International models are liberally discussed in the literature study for this project and are only cryptically referred to where information and ideas are deemed relevant for design of the institutional component of the South African Adopt-a-River model. Success stories on involving the public in environmental health programmes exist in many states of the United States of America, Canada and Australia.

The table below has been adapted from the roles identified by Rossouw and February[26] and modified to incorporate findings from this study, which has a greater focus on public awareness, than on actual monitoring and the results thereof.

Roles to be accommodated in a governance structure/ institutional framework for Adopt-a-River	**National level**	**Regional level/CMA**	**Local level/ Mun, WUA, community reps**
Co-ordinate and administer Adopt-a-River programme	x		
Inputs into operational design of Adopt-a-River programme	x	x	x
Mobilise and support Adopt-a-River steering committee	x		
Develop programme publicity and training material Consultations in development of programme publicity and training material	x x	x	x
Co-ordinate and disseminate information regarding programme	x		
Marketing towards fund raising	x		
Provide adequate budget to sustain programme – seed money for volunteer monitoring also to be provided where necessary	x	x	x
Ensure linkages to relevant national programmes	x		
Represented on Steering Committee to provide strategic guidance to Adopt-a-River programme	x	x	x
Provide contact point and follow up mechanism for queries	x		
Implement policies to conserve and manage water resources		x	x
Procure, mobilise, coordinate and support Adopt-a-River expertise/resources - local and small scale initiatives will gradually develop		x	(x)
Identify source of funding for awareness, training, monitoring, river clean-ups and rehabilitation		x	

[25] WRC and DWAF sponsored workshop for Adopt-a-River on 8 May 2008, WRC in Pretoria

[26] Rossouw and February, 2006. Guidelines for implementing volunteer monitoring models in South Africa

Roles to be accommodated in a governance structure/ institutional framework for Adopt-a-River	**National level**	**Regional level/CMA**	**Local level/ Mun, WUA, community reps**
- by exception this may be a national initiative	(x)		
Consult stakeholders		x	
Maintain communication channels between stakeholders, in accordance with national guidance	(x)	x	
Find patrons for the programme at a senior level		x	
Mobilise and involve roleplayers at local level to implement Adopt-a-River programme			x
Ensure sustainable practices by riparian users who affect water resources			x
Identify and coordinate local clean-up or restoration initiatives			x
Support capacity building and knowledge sharing initiatives at local level			x

Confusion exists regarding where responsibility actually rests in a community level project which is essentially a partnership between the institutional structures and the interested parties at local level. Empirically the experience has been that a champion at local level is what determines success of the operational activities. Someone who drives the project, organises regular meetings, facilitates communication between roleplayers and thereby keeps momentum at the river level, is essential to sustainable 'adoption' of a river.[27]

This champion does not have to be the expert in water health. Input by experts on freshwater ecology, hydrology and general environmental management[28] can be sourced on an *ad hoc* basis. To this end there is an important role for sponsors to enable procurement of the desired expertise.

One of the areas where expectations have to be carefully managed is the role that volunteers can and ought to play in an initiative of this nature in South Africa:

Demographic realities are that one third of the country's population is under the age of fifteen.[29] Only 7% of the population is over 60 years of age, people potentially outside the economically active group, who may have time to dedicate to community programmes. In the current economic climate unemployment or underemployment is a harsh reality, and families prefer to earn dual income where possible and for the same reason, retirement age is often deferred. Furthermore, about 45% of rural people in the economically active group are employed as farm workers and domestic assistants. People with irregular working hours and subsistence level living conditions are unlikely to volunteer their time for unpaid activities outside their social

[27] Partnerships for Healthy Rivers: A handbook on establishing effective partnerships (City of Cape Town & WESSA, 2006)

[28] In the Keysers River Restoration Project partnership, the project's success relies on private companies such as Wetlands Solutions and NGOs like WESSA to train and equip workers to rehabilitate the river

[29] http://www.statssa.gov.za/ July 2008 mid term estimates (plus 2001 census summaries)

circle. It also has to be kept in mind that the current life expectancy at birth of South Africans is about 48 years, compared to societies where the number is about 30 years higher[30].

To expect this shrinking resource pool of volunteers to yield the same levels of volunteer input as for example a decade ago, or as in other countries with much older populations, is not realistic. There are several pressing needs competing for volunteer resources: AIDS orphans, upliftment projects and feeding schemes, to name a few.

There is no doubt about the value of the contribution that volunteers can potentially make, as clearly demonstrated by the large number of international programmes[31] that support volunteers to monitor water quality data. There is, however, the concern that in practice in South Africa volunteer efforts in the water environmental sphere are largely triggered by contamination incidents, and then by individuals who because of their other commitments are only irregularly available to the cause of health of the river in their area.

Despite the above, volunteers can make a valuable contribution. Monitoring, even informally, of the same site over a period of time, provides baseline data that may be of value for example when gradual pollution occurs. Activities by the members of the public stimulate awareness amongst society of the relationship between human behaviour and the ecology. By involving the youth[32] in monitoring or clean up activities, this is an opportunity for hands-on education in best practice at an impressionable age. Raised awareness with the decision makers may also guide their efforts which have an impact on the ecology.

Land owners have certain obligations to protect the environment and mitigate pollution of public resources that stems from their activities. Abstraction permits and water use licences contain prescriptions that need to be adhered to. There is also an expectation that corporate land and water users should be involved in cleaning up their contribution to pollutants. Often money or labour resources are readily made available for these causes that fall in the ambit of social responsibility.

The aspect of maintaining communication channels between stakeholders is also a complex one. Any Water Management Area or Municipality could comprise several divisions with jurisdiction over certain of the parameters that influence river health, each with its policies and plans. Lateral communication between divisions may inadvertently neglect aspects which are important to river water users and the message to other members of any informal partnership, or even to national level, ideally has to be one that integrates the perspectives of the roleplayers. A clear message of this nature suggests regular communication between relevant departments and a single communication channel (also to the media!)

[30] https://www.cia.gov/library/publications/the-world-factbook/ (USA 78, Australia&Canada 81, world ave 66yrs)

[31] Literature study of monitoring models as part of this Adopt-a-River Programme

[32] Building on the success of Kids in Parks launched by SA Department of Environment and Tourism

In an attempt to achieve "A Park for all, forever" the Table Mountain National Park Forum[33] has selected fifteen nominees from over 100 volunteers to be part of realising their vision for the mountain. Residents of Cape Town who have experience in biodiversity, land consolidation, cultural heritage, environmental education, safety and security, community partnerships and communication, as well as indigenous knowledge, participate in workshops, as representatives of the city, to provide strategic advice to the park's management, on preserving this mountain for the benefit of the city of Cape Town and of South Africa.

The need for and responsibility for accuracy of any data that may be generated in the process of an Adopt-a-River programme have not yet been clarified. A separate report on monitoring and data is part of this study.

1.4 BUILDING BLOCKS OF AN APPROPRIATE INSTITUTIONAL FRAMEWORK/GOVERNANCE STRUCTURE

The minimum requirement for a national programme to encourage South Africans to 'adopt' their rivers, is that there has to be institutional support at a higher level for these initiatives that take place at local or river level. In other countries, for example Canada, a dedicated voice exists for community involvement.[34] This network is dedicated to promoting improved cooperation amongst programmes and coordination to link conservation and sustainable use initiatives.

The components of support have to include policy, knowledge and awareness, managerial and logistics/resourcing aspects:

- *Policy* needs to encourage, or at least not discourage, involvement of lay people at the local level
  Comment – in South Africa water resources policy is generally in place to support the activities associated with the intended Adopt-a-River programme
- *Knowledge sharing* in the form of guidelines, publications, web information and accredited training programmes is important
  Comment – Research is needed and a means of integrating such research with existing resources. Training is perceived by many school leavers as an opportunity to later get into formal employment – this component needs secure funds. Capacity building for workers and volunteers strengthens any partnership activities
- *Awareness creation* promotes insight into the link between human behaviour and nature
  Comment – Improved awareness of how to be involved in caring for local water resources, may create greater involvement from the community
- *Managerial/administrative* - Institutional arrangements have to promote efficient use of financial resources being allocated to support Adopt-a-River

[33] http://www.sanparks.org/parks/table_mountain/people/forum_com

[34] Canadian Stewardship Programme Communities Network – refer Literature study of monitoring models as part of this Adopt-a-River Programme

Comment – this aspect is after finances the most critical one for sustainability of a programme

It will be imperative to have a dedicated, full time *national manager* to champion the Adopt-a-River initiative from the onset of the programme, even if there theoretically is only one river project on the initial list

- *The business plan* of the programme and each of its components have to be implemented with dedication
- *Resourcing* - Greater community capacity will enhance community ownership and empower individuals to contribute more to conservation.
  Comment – the community itself is best equipped to identify its own needs to sustain use of the resource. Time spent supporting the local initiatives and allowing full responsibility to develop, is likely to deliver dividends in the form of community ownership. Investment in suitable equipment is secondary but also important
- *Long-term funding* has been identified as one of the most important requirements for successful Adopt-a-River programmes. Funding must be predictable and secure to sustain the programme and achieve long-term benefits
  Comment – Tangible incentives, including economic incentives and technical or logistic support, have proven to be very effective in advancing Adopt-a-River programmes in other parts of the world[34]. Economic incentives strengthen commitment to Adopt-a-River, especially where activities entail costs to those involved
- *Networking* – is a valuable tool, especially to promote effective collaboration among sectors and organisations participating in Adopt-a-River initiatives.
  Comment – Regional and national networking using conferences, electronic and other means are also important to share successes and failures, and to help design regional programmes

Additional elements required to deal with communities who participate by adopting rivers in broad terms entail:

- *Data and Information* - Improved data and information management can also promote collaboration among organisations
  Comment – Electronic and other data and information needs depend on the community. Effective approaches for dissemination must be established to ensure intended audiences are reached. It has for example empirically been established that people in rural areas in South Africa generally have access to cell phones but only by exception to computers and even postal services
- *Monitoring and reporting* - Measuring and recording success related to the actions, relative to the goals, and also linking that to a time line, will serve to encourage people on a river restoration project
  Comment – Monitoring and reporting may require development of performance indicators and the use of electronic and other means to share information across a national Adopt-a-River network. The challenge will not be in new data collection, but in enforcing the

discipline of collection by users, and effective storage, processing and quality assurance of this information[35]

1.5 RESOURCE REQUIREMENTS FOR AN APPROPRIATE INSTITUTIONAL FRAMEWORK/ GOVERNANCE STRUCTURE

Unless the intended Adopt-a-River Programme has the full support, adequate resources and autonomy in its role as national coordinator of local initiatives to care for rivers, it will not be sustainable.

It cannot be overemphasised that a champion at national level is imperative for the future of this programme. The tasks listed in Chapter 1.4 cannot be integrated from any other than the top level where the ability exists to see the full picture.

Resource requirements at the level of the river and the local community are a function of local conditions, the nature of the problems to be solved, and the type of community who shows an interest in being involved in the solutions. To generically list and quantify resource requirements at this level is a lot more difficult.

It is the considered opinion of the design team that the budget for the national programme should *not* include operating expenses to rehabilitate individual rivers. The *national* team should have funds to coordinate and administer the programme, provide strategic guidance to the programme, be a contact point and follow up mechanism for queries, perform marketing and fund raising, develop programme publicity and training material, and also ensure linkages with relevant national programmes.

Local activities at river level have to be supported with expertise, training material, training where necessary, and mechanisms to share experiences of others in the same situation. Funds for the actual activities have to be raised from other sources, ideally sponsors and patrons closer to and directly involved in the project. Volunteers would here for example be classified as providers/sponsors of labour (their own). Local authority organisations that allow an official, whose function peripherally relates to the objectives of Adopt-a-River, to perform additional tasks during the hours for which he receives a salary, also are sponsors in the wider sense of the word.

The best estimate at this stage of the funds needed to orchestrate the Adopt-a-River with a full time national coordinator, excluding funds for project level work, is R3 million per year. This estimated amount assumes that a single pilot river will be managed in every province at the onset of the programme, and that there is no immediate need for intermediate structures at regional level until additional river care teams come on board in each province. The figure will escalate as the number of rivers that join the programme increases. The assumption is also

[35] Literature study of monitoring models as part of this Adopt-a-River Programme

made that an organisation with spare administrative ability can be used to coordinate the programme and support the national coordinator of Adopt-a-River.

At this point it may be opportune to add that it is not considered prudent to have volunteers in the national level structures of the Adopt-a-River programme, especially not at the onset of the programme. Volunteers in the pure sense of the word, being persons who voluntarily undertake a task or offer their services, cannot be pressurised into producing agreed deliverables other than when their personal priorities and convictions allow participation. Building a sustainable institution on *ad hoc* availability of temporary labour is not realistic. Talented, dedicated and dynamic people have to be sourced and supported to do this task on a full time basis.

Sharing information through internet exchanges is a useful tool, and in other countries sophisticated data management systems exist which enable samplers and decision makers to know what the status is in a river reach. This is an important building block in the process of support to the communities on the ground, and a step towards autonomy of action without incurring undue risk.

At *river* level, there are different roleplayers, depending on the size of the river and the size of the community. The local authority, water user association, community representatives across the spectrum from school children to environmental activists, fall in this category. Contributions are often in the form of time made available to further the cause of the health of the river. The first step is to mobilise and involve roleplayers at local level to adopt their river or water source when there is a problem that needs to be solved. It is then necessary to identify and coordinate local clean-up or restoration initiatives. It is a lot harder to actively involve local players merely to preserve the current state of a healthy river for future generations!! A large component of support is of a logistical nature, as well as knowledge sharing and increased understanding of the relationship between human behaviour and nature.

Resources available will depend on the nature of the community and the way in which the local river and its banks are used. Media interest in the issues may also play a role.

The *regional* level, that is either catchment level, or provincial level, the choice dictated by the sequence in which river communities show an interest in joining the programme, in other words the geographic spread of 'adopted' rivers, funds and resources have to cover mainly the support of expertise and resources in that region or catchment.

Regional efforts will be focused on finding local patrons for the programme, maintaining communication channels between stakeholders, and consultation drives to improve awareness of the general public of river health parameters. This level in the institutional structure is also the logical one where sources of funding for regional awareness initiatives, training, monitoring, river clean-ups and rehabilitation can be canvassed from for example prominent industry players in the region. Foresters, factories, mills, commercial farmers and other enterprises with entrenched water rights and potentially harmful effluent or return flows to rivers, may be

approachable to making contributions in kind or in cash to support river health. Regional level structures in general will also have greater capacity to procure expertise to support river health activities, than local (sometimes informal) players may have. Examples are expert opinion, legal advice or emergency interventions that would only by coincidence lie within reach of local communities and their funds. Labour law and workman's compensation issues could also be a mine field to those who do not have the expertise, when it comes to using casual labour in river clean-ups.

From the South African experience, the best predictor of success of a programme which involves community resources[36], is that the citizens have to be able to see that their contribution makes a difference.

Training of the participants to enable them to make a focused contribution is very important. Well-structured training has the dividend that it serves to attract a diverse spectrum from the community, people from all levels starting at school learners till school leavers and professionals from different disciplines and ages groups. There is serious interest in SAQA accredited training which is seen by unemployed people as a stepping stone to employment in the formal sector (Accreditation of training is a very time and resource intensive activity and unless part of the specific objectives, has to be pursued with extreme caution).

The Labour Law for example does not provide any working conditions, protection and benefits for people who are not contractually employed. Health and safety of people who are casually involved in work, is also not covered by legislation (and therefore also not by insurance to the public).

Experience on several Rand Water and Umgeni Water programmes has been that paid workers add a myriad of risks and costs over and above their wages. Staff development issues such as supervision, technical assistance, formal conflict management procedures, economic incentives and administration[37] to mention a few.

Critical skills that have to be acquired are development of business plans, conflict management, financial budgeting and record keeping.

Initiatives like Working for Water, a component of the Department of Water Affairs & Forestry's Natural Resource Management programme, have been instrumental in removing alien/invasive plants that increase the water demand, and that reduce the runoff near rivers, compared to their indigenous counterparts. These ecosystem services are based on the premise that the livelihood in a community has to be higher after the project, in other words that the intervention not only shows an improvement in the natural environment, but also in the disposable income in the community (this is an essentially pro-poor approach). The Extended Public Works

[36] Literature study of monitoring models as part of this Adopt-a-River Programme

[37] Also reiterated by R Adriaans *et al*: A co-operative and participatory approach to the management of urban drainage catchments in the Cape Metropolitan Area, 2000

Programme has a similar focus and reports considerable success. Instead of embarking on experiments with paid or volunteer labour resources, Adopt-a-River may want to forge formal links with programmes that already have mechanisms in place to manage labour in certain communities.

Transparency of funds flow is important to all donor bodies.

Transparency of information flow is equally important, but more difficult to achieve unless all data is only handled by qualified people. The national water quality programmes under jurisdiction of the Department of Water Affairs & Forestry (Chapter 1.2), follow strict protocol and are subjected to stringent data quality control. To have reliable data these programmes need long lead times, which means current information and regular updates cannot always be achieved. The number of sites incorporated in these programmes is also constrained by the human and financial resources that can be allocated to them.

Data collection has to meet a specific objective and be part of a bigger picture. If a serious need for scientific records exists at a site, it may be appropriate to motivate extending the national monitoring programmes to include this site, rather than start informal monitoring. Depending on what the data is used for[38], in certain instances it may be more important to have ready access to data than to have to wait weeks for accurate information from the formal channels.

A person with a flair for communication, especially mentoring, will also be a valuable asset on a programme of this nature, to assist with setting realistic goals regarding an achievable desired future state of a river reach. This aspect becomes progressively more important when rivers are subjected to competing water use.

Achievements of the Adopt-a-River programme need to be published. Knowledge and information can be distributed in this manner, but more importantly, lessons learnt on one project can be effectively shared with other and shorten the learning curve. The medium of sharing will depend on the audience. Share-Net, a website and networking tool hosted by WESSA[39] is an example of a very effective communication mechanism. The initiative entails environmental education to support teachers and practitioners by amongst others promoting access to printed resources and guidelines for the price of photocopying the material. The approach is participatory and responsive, and the main output is a network of people, places and publications in environmental education in Southern Africa. However, its application is limited to interested parties who have access to the internet or are subscribers.

Several communication sites also exist in public domain, such as Gumtree community website in Cape Town. The Distant Learning and Information Sharing Tool (DLIST)[40] is a web platform,

[38] Awareness programmes with school children, e.g. fall in the category where hands-on process and immediate results are more important than actual records

[39] Literature study of monitoring models as part of this Adopt-a-River Programme

[40] http://www.environment.gov.za/hotissues/2007

launched in 2003, to facilitate distance learning and provides a space for open debate and discussions on environmental and development matters. The information sharing and electronic communication part of the Adopt-a-River design is addressed in a separate report.

The reality is that in South Africa, computers and sophisticated data transfer are still limited to the urban society. Rivers and river water quality problems do not limit themselves to the urban part of society.

The printing of pamphlets and distribution of leaflets can supplement other communication channels, not only spelling out achievements but also the needs of a specific project or the programme, to further canvass resources.

Although resources are not the same as finances, most community programmes face the reality that stable funding and stable staffing can make or break a programme. Sustainable programmes are generally those that have diversified funding sources and programme elements, ensuring programme flexibility while maintaining the core priorities of the local community[41].

The debate continues about using volunteers to carry out activities, at the exclusion of paid workers at community level. There are benefits and risks to each option. Apart from the legal implications of employing and supervising people, which could make volunteers more attractive, there seems to be a trend that people are more reluctant than in the past[42] to volunteer participating in community activities.

River wardens have been appointed to clear alien vegetation, remove litter, set up signage and to be involved in activities which would assist in rehabilitation of the Duzi River[43] near Howick in KwaZulu Natal. These wardens are paid staff members of one of the factories in the town. Variations on this model exist elsewhere. For example Wetland Solutions train and contract staff to act as warden a few days a month in the Western Cape.

As mentioned in Chapter 1.2, community level involvement in the management of natural resources focuses on implementation of solutions, in contrast to other levels of participation, where emphasis would be on norms and rules that shape behaviour and expectations to achieve a common goal.

This bias to activity could explain the popularity of water quality monitoring amongst community members. Monitoring water quality merely for the sake thereof, is however seldom meaningful. Monitoring is important for community education, environmental protection, managing waterways and controlling pollution. Monitoring consists of making measurements that are analysed and reported for the purpose of providing information and knowledge about a

[41] Literature study of monitoring models as part of this Adopt-a-River Programme

[42] Friends of the Liesbeeck River experienced that cleaning up the river, which is a labour-intensive task, cannot be accomplished without employing workers

[43] Duzi uMngeni Conservation Trust (Duct)

waterway. Identifying a clear purpose for monitoring is the foundation for any effective monitoring programme and should be based on analysis of issues affecting the catchment and/or water body.

The quality and reliability of data must be reported to data users so that information can be used with confidence for comparison across catchments and through time[44].

Sampling and monitoring of any kind, but especially monitoring that would have any depth of application, would significantly add to the resource requirements of an Adopt-a-River programme. In America[45] training workshops are offered at a water body where monitors live. Sampling sites are selected that are convenient, safe, legal, accessible and strategic in water quality information gained. Monitors are encouraged to sample sites at least monthly to record water conditions and capture seasonal and annual trends. If the data is to be used and managed nationally, a protocol needs to be designed for standardised record keeping, site numbering, parameters monitored and assessment methods. Technical support from a central source also has to be mobilised, such as a database for storage, analysis and subsequent dissemination of data to users. In some states in America chemicals and testing equipment are provided in kit form to monitors[46]. The Iowa Department of Natural Resources, as another example, uses state and federal funds to administer its programme[47] and associated training of volunteers, aimed at different levels of involvement.

Monitoring initiatives as part of Adopt-a-River would need dedicated funds for equipment and possibly for staff, or at least advisors and educators who pledge inputs to projects.

Organisational skills to manage and maintain the project on a full time basis will be essential at start up, as discussed above. A monitoring plan will have to be designed, with associated training and logistics support. A network of knowledgeable people such as water quality and ecology experts has to be retained. Access has to be arranged to appropriate meeting, training and laboratory facilities.

It has to be decided whether the resources for actual monitoring and support thereof belong at national level, and where the associated funds will be sourced. Sourcing funds is a time consuming task which cannot be left to chance and *ad hoc* availability of an individual.

[44] Cassidy, 2003, Waterwatch Tasmania as quoted in Literature study of monitoring models as part of this Adopt-a-River Programme

[45] Global Water Watch and IOWATER (http://www.iowater.net as quoted in the Literature study of monitoring models as part of this Adopt-a-River Programme)

[46] Oklahoma Water Resources Board quoted in Literature study of monitoring models as part of this Adopt-a-River Programme

[47] IOWATER volunteer water quality management programme - Literature study of monitoring models as part of this Adopt-a-River Programme

Monitoring has a valuable education component, or at the other end of the spectrum may be a long-term investment in support of sustainable water resource development.[48] However, the benefits of monitoring are not likely to outweigh the sizeable investment and maintenance costs in terms of the infrastructure required to sustain meaningful monitoring. It would follow that groups whose primary purpose is education and constituency-building ought to adopt simple, easy-to-use assessment methods and may not be able to justify a stringent quality assurance plan.[49]

Patrons can make a valuable contribution in 'branding' a programme of this nature, and raising its profile to a prominent level. A powerful patron for the programme or for certain rivers could be instrumental in linking much needed large corporate sponsorships to sustain the Adopt-a-River initiative.

Funds are needed to provide sufficient tools, resources and support in order that programme leaders understand how human behaviour influences natural resources, and guide them to engage in the work required to effect change.

1.6 PRACTICAL CONSTRAINTS TO USING EXISTING INSTITUTIONS

In Chapter 1.2, the premise was that Adopt-a-River should be launched and implemented by existing institutions in preference to creating a new institution for this purpose. With reference to the roles and responsibilities the programme implementing agent will have to perform, summarised in Chapter 1.3, the design team attempted to find a match between the resource requirements and the abilities and resources of the role players in the South African water management field.

National departments DWA, DEA and DA

The main candidates at national level to host the programme are the Departments of Water Affairs, of Environmental Affairs and of Agriculture. These departments carry part of the responsibility for the health of water in rivers in South Africa. DWA namely is custodian and regulator of water resources, DEAT:DDG Biodiversity and Conservation has a mandate to conserve biological biodiversity and local natural resources and ensure the sustainable utilisation thereof, while being responsible for water use and irrigation development and the DA is expected to enhance sustainable management of natural agricultural resources and ecological systems.[50]

An in-depth analysis of skills and interests of individuals in organisations is beyond the scope of this study. The design team is of the opinion that an institution's mandate, infrastructure and its spare capacity and track record would be an accurate barometer of its suitability to take responsibility for piloting and implementing the fully fledged Adopt-a-River programme in the

[48] USA Environmental Protection Agency (USEPA) - Literature study of monitoring models as part of this Adopt-a-River Programme

[49] http://www.iowater.net/

[50] National Water Act 1998, http://www.dwaf.gov.za;http://www.environment.gov.za;http://www.nda.gov.za

near future. The commensurate roles and responsibilities of the implementing agent were mapped out in Chapter 1.4:

The three departments all have the ability to administer and coordinate the programme, in terms of their respective mandates. The South African constitution (Act 108 of 1996) also prescribes that government has to extend monetary and other support to the cause of water resources and the environment for its citizens. The sustainability of water resources is further being guided by several policy and legal frameworks.

There is no doubt about the ability to generate the necessary programme publicity and training material in any of the departments. Likewise, all three departments would be in a position to ably coordinate and disseminate information regarding the programme.

Adequate funds for the Adopt-a-River programme are a prerequisite, and it would be difficult to implement this programme without ring-fenced funds, in other words if it were to contend with other priority projects inside a department on a year-on-year basis. It is therefore, until more accurate information exists, assumed that funds for will be made available, regardless of where the programme will be hosted.

Government departments will probably not be tempted to promote infrastructure development at the cost of the environment, as might be feared where a profit motive exists.

The necessary linkages with relevant programmes in sister departments need to be designed and implemented as part of the Adopt-a-River initiative. Every department also has a sophisticated data management system that will enable sharing of information through internet exchanges or other channels as desired.

Marketing and fund raising requirements at national level in South Africa are less clearly understood.[51] The fear that there may be long delays in response (Chapter 1.3), where an agency would be indifferent to the water condition, may not be totally unfounded. Fast responses to crises such as spillages can be achieved but it is likely that a situation has to be perceived as a national catastrophe in order to solicit such response. There may, at national level, also be the temptation to smooth over reporting of deteriorating water quality in obscure rivers, in the hope that successes elsewhere would detract the attention from less than ideal situations – which of course would not satisfy the people who endure the problem.

Although the Adopt-a-River programme can be coordinated at national level by any of the Department of Water Affairs, the Department of Environmental Affairs and Tourism or the Department of Agriculture, the success of the programme hinges on a local 'champion', as mentioned in Chapter 1.4. At the onset of the programme in particular, such local champions

[51] International models rely heavily on volunteer resources and coordination and support thereof is a major task, which in many cases is funded by federal government

need guidance from someone with the full picture, both in order to communicate the vision of the programme and to shorten the learning curve for people who want to actively participate in the management of their river reaches at the far corners of the country. This national figure has to unlock access to information, expertise and resources that may be required, and provide managerial guidance where needed. This function is a full time task and needs a network to the local level, since from a geographic point of view it will not be plausible for one person or even a centrally situated team to meaningfully reach all constituents.

The underlying theme to policy reform in this country post democracy has also been to decentralise governance and have decision making regarding local resources primarily at the local level. Responsibility for water resource management has therefore been devolved to Catchment Management Agencies (CMAs), each functioning in one of the 19 Water Management Areas in the country. Catchment forums and water user associations participate at subcatchment or smaller spatial entities.

For these reasons the design team explored synergy to be obtained from Adopt-a-River forging links with national and provincial programmes, in the form of Provincial Water Sector Forums, the River Health Programme, Catchment Management Agencies, etc.

Regional/Provincial Structures of National Departments

The government has provided the broad principles for integrated water resources management, founded on sound analysis. Policies are based on equity and sustainability, and potentially offer all that is required to manage the country's scarce water resources in a holistic manner, with due cognisance of the basic right of each inhabitant to clean and safe water, of land ownership issues, water rights, strategic priorities, international agreements, and the ecological reserve, to mention a few themes.

If it is assumed for the purposes of this analysis that DWA will be the custodian of the Adopt-a-River programme, because the department very ably initiated the inception stages of the programme, an appropriate implementing agent has to be identified, which can provide support at the regional level. Conclusions reached for other candidate departments are however similar.

As discussed in Chapter 1.3 the main tasks to be performed by a regional level agent, are to find prominent patrons for the programme, to market the programme, to identify sources of funding for awareness campaigns and maintain communication channels between stakeholders, to canvas inputs from stakeholders on information sharing, mutual accountability and responsibility for data, to procure and support expertise and resources for activities at rivers.

The interface the agent would have with the roleplayers at river level is to assist new teams who want to care for their river with drafting a business plan, including budget, responsibilities and milestones. They may have to be guided on how to identify skills, services and funds required

by each initiative to bring a river to its desired state. There may also be a need to provide training on for example how to mobilise monitoring initiatives, river clean-ups and rehabilitation exercises.

The traditional model to implement any Adopt-a-River programme would be that for example DWA regional structures would be assisted at the local level by relevant cities and municipalities adjacent to the water bodies. Ideally officials, whose function relates to the condition of the river, can be made responsible for monitoring the condition and any related reporting.

At regional level technical expertise that historically existed in-house in the Departments of Water Affairs and Forestry, of Public Works and of Provincial and Local Government, no longer lies with the permanent staff. Many programmes heavily rely on external consultants to perform technical work. High staff turnover experienced in many national and provincial departments also sacrifices institutional memory on many facets that are essential for integration of management initiatives.

In practice, DWA does not have the spare capacity in the regional structures to add any new managerial functions that the Adopt-a-River programme may dictate. Nor does DWA have access to trained manpower in the local government structures.[52] In practice, regional staff would therefore need to mentor and support their local government counterparts on a partnership project.

Since it is important to choose as host an organisation with the necessary infrastructure that can be used to manage implementation of Adopt-a-River, it is doubtful that any of the above national departments can manage the new programme at this stage. It is not realistic to expect that these institutions can successfully add the workload of the programme onto their regional structures. These structures are already under pressure with their current work load.

The capacity to actually implement a myriad of enabling policies is therefore found to be sorely lacking[53] at regional level in any of the candidate national departments.

Agencies that could complement regional government structures

In order to supplement capacity at the implementing agent level, the DWA has for example procured the services of Rand Water and Umgeni Water, essentially bulk suppliers of water, to serve as implementing arm on several water distribution and water quality control projects. The agents procure and manage many smaller suppliers of services to assist regional and local authority staff with expertise on a project by project basis. The national and regional departments cannot procure and retain staff for all these projects and do not have the capacity to manage temporary project staff in different locations on such a large scale.

[52] Numbers & Needs in Local Government (Civil engineering – the critical profession for service delivery), by Allyson Lawless, 2007

[53] WRC Report TT 306/07 by Afrosearch and Hlathi Development Services, Assessment of Training Programmes and Capacity Needs for the Water Sector

The parastatal organisations in the abovementioned situations in many instances already deal with the interface that would exist with a local champion of Adopt-a-River. The organisations provide a contact point and follow up mechanism for queries, procure, mobilise, coordinate and support expertise and resources as would be required for the Adopt-a-River programme, and are expected to maintain communication channels between stakeholders and support capacity building and knowledge sharing initiatives at local level.

Rand Water or any of its counterpart organisations would therefore qualify as candidates to support implementation of Adopt-a-River at regional level.

South Africa has been divided into 19 Catchment Management Areas (CMAs) for purposes of promoting holistic water resources management. While CMAs are an organ of the state, they are a legal entity outside the three tiers of government. The ultimate role of CMAs is to regulate the allocation and use of water. Although they do not have any role in terms of water services provision, the CMAs' catchment strategies plus their associated relationship with local authorities, is likely to improve such services. The role of the CMA will initially be to advise interested persons with regards to water resources protection and management, coordinate the functions of institutions involved in water related matters in the area, and thereby involving local communities in the integrated management of water resources.[54] The CMA is a mechanism to unite (intended or unintended) opposing demands on the water resources of a catchment. Catchment Management Forums are one of the National Water Act's prescribed platforms to achieve collaboration in water resource management. Catchment Management Agencies will be a logical choice as implementer for the Adopt-a-River programme, since the role and responsibilities of Adopt-a-River implementing agents are included in their mandate. This mechanism, to oversee water related activities according to the policy, is however in its infancy and the phased implementation means that no more than half a dozen of these bodies have been established to date. The timeframe for having all 19 areas fully functional makes it impractical to wait for this agency to support and implement Adopt-a-River initiatives.

Governance of water resources at the community level is not new in South Africa. Apart from parastatal agencies, numerous service organisations have also been involved, formally or informally, in the repertoire of tasks that entail water resources management.

The Land Service (Landsdiens) has a programme called Rescue our Rivers/Red ons Riviere[55] which is identical to Adopt-a-River for urban situations. The programme is in its infancy and includes initiatives to clean hyacinths from the Crocodile River, to adopt several beaches in the Cape and to perform river cleanups in many streams. Rescue our Rivers will benefit from linking into Adopt-a-River.

[54] Water Wheel July/Aug 2007 p15; Guidelines for the development of Catchment Management Strategies, p5/p39, DWAF Feb 2007

[55] http://www.landsdiens.co.za/omgewingsprojekte

CapeNature is a government organisation and potential partner that wants to engage communities in conservation action, to "…ensure the long-term conservation of biodiversity while improving the quality of life in local communities."

The Wildlife and Environment Society of South Africa (WESSA)[56] is the largest non-governmental conservation organisation. The organisation has received an award from The Green Trust, representing the World Wide Fund for Nature[57] (previously called the World Wildlife Fund), for the successful integration of conservation with development in environmental management, over 80 years in Southern Africa.

The organisation has contributed to national conservation legislation and formation of several protection areas for game, nature and wetlands. It is well known as an organisation that lobbies the interests of the environment where development may become intrusive. The organisation has also successfully mobilised tremendously positive inputs from institutions that would traditionally be termed counterforces in the environment arena - the Mondi Wetlands project for example pioneered care for wetlands outside conservation areas and has moved wetlands conservation to centre stage. This programme would have an important interface with Adopt-a-River in its wider water resources application. WESSA is a major player in the field of environmental education[56] to schools and educators, as well as via Share-Net[58].

Professional conservation and education staff are employed to work directly with the public, with local, provincial and national government and with other conservation bodies to press for effective environmental planning and legislation to offer better protection of the environment.

WESSA has representation on many national and regional conservation bodies and investigatory commissions, and is a founder member of the World Conservation Union.[59] Structurally, the Society is a Section 21 company registered as an Incorporated Association not for gain.

In 1997 WESSA was appointed to establish and manage environmental education processes in the 15 Southern African Development Community (SADC) countries on behalf of the Land Management Sector of SADC. The programme for which WESSA is the implementing agency is called SADC-REEP, referring to the Regional Environmental Education Programme. The original financier was SIDA, and following its success funds have more recently been pledged by DANIDA, USAID and IUCN.[60] The programme has four major components[61], virtually identical to those that are envisaged for the institutional structure of Adopt-a-River, as discussed in Chapter 1.7: networking to strengthen and broaden the education network of the region,

[56] http://www.wessa.org.za

[57] http://www.panda.org.za

[58] Share-Net is a collaborative venture between WESSA, KZN Wildlife, WWF-SA and Rhodes University to produce copy-right free Southern African resource materials

[59] Formerly the International Union for the Conservation of Nature - IUCN

[60] Swedish International Development Agency (SIDA), Danish Ministry of Foreign Affairs (DANIDA), United States Agency for International Development (USAID), World Conservation Union (IUCN, vide[59])

[61] http://www.sadc-reep.org.za

support for environment education policy, development and strengthening of environmental education capacity and of resource materials to the latter.

Although not an independent initiative in the same sense, Working for Water is worth mentioning. Working for Water (WfW) is a component of the Department of Water Affairs's Natural Resource Management programme, along with Working for Wetlands, Working for Woodlands and Working for Fire. The main aim of Working for Water has been to remove alien/invasive plants that increase the water demand, and that reduce the runoff near rivers, compared to their indigenous counterparts.

There are two issues that can link the WfW initiative with the Adopt-a-River Programme. These are awareness creation and ecosystem services. Ecosystem Services are based on the premise that the livelihood in a community has to be higher after any WfW intervention, that the intervention not only shows an improvement in the natural environment, which is a pro-poor approach. Payments made by the programme for Ecosystem Services are aimed at improvements in three sectors, those of socio biodiversity, carbon footprint reduction and water/land use and yield.

In view of the abovementioned constraints to mobilising volunteers, there may be a potential link with the Adopt-a-River Programme by choosing poverty stricken nodes and rivers with water quality problems that can be solved by ecosystem services. Watershed services include eradication of alien invasive plants and subsequent re-establishing of ecosystems. Special focus on alien clearing can improve the water quality and quantity.

Working for Water can meaningfully and efficiently perform implementing agent duties during the pilot projects that will precede full scale implementation of the Adopt-a-River programme, since Working for Water already has a network of implementing arms in all nine DWA regions.

Further success stories involve conservation efforts by cities or resident groups who live along river reaches.

The City of Cape Town has embarked on several initiatives to conserve its resources, amongst which is the Table Mountain Conservation area. The role of the City of Cape Town is supportive, rather than as actual driver of projects, it provides the use of equipment and other services which are needed on projects in the city. Without the support the project would not materialise. However, the City does not have the manpower capacity to play the lead role. A champion at the project end is better positioned to manage resources, and communicate with the diverse roleplayers also in different departments inside the city structures[62].

Friends groups have been instrumental in rehabilitating, preserving and reinstating many institutions and natural resources in South Africa. Museums, libraries, zoos and nature

[62] Partnerships for Healthy Rivers: A handbook on establishing effective partnerships (City of Cape Town & WESSA, 2006)

reserves are examples that spring to mind. The principles of collaboration and accountability are key aspects to sustainability of these public resources. It is hypothesised that this model, with added administrative capacity for vital coordination, will have great potential as a vehicle for public awareness, as well as caring for river environments and water bodies in general.

The concept of Friends Groups[63], originally only for Nature Reserves, has been operational since the 1980s, and the groups related to wildlife and the environment have gradually been drawn into an official Friends of Nature Areas programme administered by WESSA. Groups such as Friends of the Liesbeeck, Friends of the Moreleta, Friends of the Great Fish River Reserve and Friends of the Pilansberg are concerned members of the public who, under guidance of the land owner or authority, are involved in finding solutions to a local resource subjected to degradation in some form. The group learns about the area, may also produce informative material about the resources, could be doing physical work to manage or reverse problems, or may engage in exercises to inform legislators, developers or the public regarding the cost to the environment of continued activities of a certain nature or of planned future developments.

The National Environmental Management Act (1998) and the Non-Profit Organisations Act (1997) govern the legal rights and responsibilities of amongst others friends groups, as part of setting and maintaining standards of governance, transparency and accountability. Official affiliation with WESSA provides access to guidance, expertise, resource materials, information sharing and networking mechanisms, and formal as well as indirect capacity building opportunities.

At the local level another potential resource exists that can be harnessed by the implementer of Adopt-a-River. Groups often spontaneously mobilise themselves and involve roleplayers to implement programmes with similar objectives to those of Adopt-a-River. The community or a local institution identifies and coordinates local clean-up or restoration initiatives. Bodies like Men on the side of the Road,[64] SoapKidz[65] and Collect-a-Can are drawn on to assist with execution.

In general these groups can benefit from learning from other such groups, and sharing their own experiences. It would also add to the sense of achievement, when these groups see their successes published. Sharing information via public channels, amongst others websites, is an effective tool to creating awareness and transferring skills. Since not all groups have access to the necessary infrastructure, lower tech communication channels and face to face contact have to be maintained also.

Guidance as well as manuals and formal training are necessary for quality assurance. Equipment suppliers can probably be included as resources for training and guidance.

[63] Handbook: How to establish a WESSA Friends Group (http://www.wessa.org.za)
[64] www.employmen.co.za
[65] Rekord East 3 October 2008

Involvement of the public

Parastatal institutions and local authorities that have experience with involving the people who live on water bodies in monitoring programmes, report[66] varying levels of success on this topic.

Rand Water no longer uses lay people to do water sampling. The logistical aspects and costs of collecting samples for testing from remote areas on an *ad hoc* basis have proven insurmountable. Many samplers expect to receive remuneration, regardless of their own dedication. Volunteer management and support, as well as training on water quality monitoring are time consuming and hands-on activities that require extensive resources. Health and safety of informal samplers can not readily be regulated.

The City of Cape Town drew important conclusions on involving local people, namely that the success rate is improved when the initiative is need driven eg. where a community utilises a river or dam for recreational purposes. Awareness campaigns involving school learners also deliver satisfactory results. Without the necessary funding, focus and specific skills in the community, any more than awareness creation when adopting a site or river, will not be viable[67].

Conclusion

Working from the premise that existing institutions will be used in preference to newly created ones, the analysis included identification of roles, responsibilities and functions relating to Adopt-a-River already covered by different organisations.

The conclusion reached by the design team is that from an institutional perspective, a number of parties exist who can effectively participate in Adopt-a-River, by way of their mandate, resources and existing functions. A further prerequisite for involvement would of course be goodwill, or willingness to cooperate, on a programme that originated in a different department.

The analysis highlighted a serious problem in that many institutions do not have the manpower to fulfil their obligations in terms of their mandate. The current bottleneck is that several regional structures are under severe pressure because they are understaffed and it would not be realistic to further tap from their interface with local authorities, which in many cases exists in name only.

Coordinating the Adopt-a-River initiatives to achieve sustainable results on a national scale is a formidable task. Although the enabling legal instruments do exist, there is no single institution in South Africa with the capacity to host and implement the programme nationally. In practice it

[66] Partnerships for Healthy Rivers: A handbook on establishing effective partnerships (City of Cape Town & WESSA, 2006) and Rand Water and Umgeni Water experiences as quoted in par 4.2 of Literature study of monitoring models as part of this Adopt-a-River Programme

[67] The data and information collected were not used for a specific purpose other than creating awareness. In most instances, no laboratory analysis took place.

will be necessary to form partnerships between authorities, agencies, concerned community organisations and the public, to be able to adequately fulfil the roles involved in adopting rivers.

A national programme manager is necessary to coordinate all activities of an Adopt-a-River nature on a full time basis. Involving the public, although desirable from the perspective of community education and behaviour change, comes with risks and has to be carefully considered. Nonetheless, stakeholder involvement is in keeping with South Africa's constitution and cooperative engagement at local level makes or breaks long-term sustainability of any initiative.

Much can be achieved with lay labour and with volunteer inputs, however, the focus and time frame of a specific river's solutions and the candidates on the river banks will determine to what extent volunteer labour can be a viable resource.

The fact that there is an overwhelming lack of capacity in statutory water resource management structures, provides opportunities for alternative resource arrangements. However, formalised agreements on commitments are often made, but until punitive measures accompany these, enforcement is difficult, especially when roleplayers are not employed and remunerated for specific deliverables. It should therefore be the aim to develop mechanisms that are meaningful and appropriate, with the requisite simplicity, since complicated arrangements require additional implementation capacity that is already at a premium.

1.7 PROPOSED INSTITUTIONAL/MANAGEMENT STRUCTURE FOR ADOPT-A-RIVER PROGRAMME

Introduction

An institutional framework deals with clear demarcation of roles and responsibilities of the stakeholders. Where relevant, the necessary new policy and laws have to be put in place as part of the institutional framework. In the case of Adopt-a-River in South Africa, the regulatory framework will be sufficient for start up of the programme. Additions to labour law may have to be considered with execution at the local level to accommodate the use of temporary and/or unpaid labour, considering the risks involved in, for example, water sampling and removal of alien vegetation.

The foremost aim of the host organisation or its implementing agent that leads any national Adopt-a-River programme is to enhance inter-agency coordination. Agencies have to be supported and encouraged to actively participate in the management of their own natural resources - river water being one of these natural resources.

The ribbon shape of river banks makes them difficult to manage. Not to mention the added complexity of impacts which are transferred from a single site to all downstream sites. Different stakeholders potentially also hold different, even opposing, views of the same riparian area. In order to integrate the interests and concerns of the spectrum of stakeholders, it is vital to assist

stakeholders in making well informed management decisions. Creating an enabling environment is a starting point, where interested parties can learn which approaches are suitable, without necessarily having to encounter every pitfall that could be experienced by novices. In this manner, the focus will remain on the goals that have to be achieved, rather than process that has to be established.

The Adopt-a-River implementing agent has to unlock access to information, expertise and resources that may be required, and provide managerial guidance where needed. It is important to note that a lack of institutional capacity compromises the ability of government or its implementing agent to effectively oversee projects.

It is proposed that this programme be set up to function similarly to the SADC-REEP[68] environmental initiative. A full time national programme manager has to be paid to coordinate all activities of an Adopt-a-River nature in all provinces. It is envisaged that at the onset there will be only one person on the team. In other words, there will not be any administrative or support staff until such time that there is more than mere interest in the project. The work load will dictate the pace at which staff will be appointed to the programme at national level.

What this means is that at the stage when only single rivers in every province have been adopted, there will be no provincial or regional layers in the structure. The first pilot rivers will have to be nationally coordinated by a single person and later a centralised team, until such time as the intermediate layers in the structure are warranted by the number of adopted rivers that have to be coordinated by the team.

As the programme unfolds, a formal data collection protocol can be developed for standardised data collection, information storage and retrieval, as well as communication avenues. Comprehensive guidelines and standardised definitions will gradually need to be developed, as the programme expands.

A central national unit will closely follow the model of the National Coordinating Team of the River Health Programme[69] which executes the functions associated with national coordination of the programme. Responsibilities include marketing and fundraising; day-to-day operations of the programme at national level as well as DWA contract management; coordination and dissemination of information and products; providing a contact point and follow-up mechanism for national and international queries or requests.

Premise

The role of government in the Adopt-a-River programme is to create an enabling environment where South Africans can and will start to care for their water resources.

[68] Southern African Development Community – Regional Environmental Education Programme

[69] Functions of the River Health Programme management - Literature study of monitoring models as part of this Adopt-a-River Programme

As motivated in Chapter 1.2, any Adopt-a-River programme ought to use existing institutions in preference to newly established ones. It is hoped that the programme can draw from the objectives of river ecosystem health, economic growth and co-dependent land and water use principles. The unique contribution of the programme will lie in integrating these aspects with shaping human behaviour that ought to contribute to conserving the earth's vitality and diversity. The main key to shaping behaviour is proven to be knowledge, which will be achieved by means of a strong promotion and environmental education bias to the programme.

It is important to note that South Africa has a different geographic and demographic profile to those countries that successfully implemented Adopt-a-River type initiatives that were reported in the literature review of monitoring models of this study[70]. The population of South Africa is very young compared to the populations of the developed world – one third of South Africans are under the age of 15 years and only 7% over 60 years of age. The approach to involving the local community would therefore need to be different. It is nonetheless prudent to embrace lessons learnt on other programmes[71] in the design of the Adopt-a-River initiative. Experience of Waterwatch Australia suggests that programme leaders:

- Start small
- Keep the goals realistic
- Plan because it pays off[72]
- Make connections
- Train leadership/including volunteers

Especially in view of water scarcity in South Africa and the less affluent population who often lives adjacent to remote and rural rivers, in combination with the fact that the population is a lot younger than in Australia and America, it would be astute to err on side of caution on the above findings.

With regards to *starting small*, it is proposed that a single central Adopt-a-River unit be established from where all pilots in all provinces/regions will be managed. The venue is subject to selection of the host organisation cum implementing agent.

Realistic goals are important, since a too ambitious programme – particularly at the onset, is likely to delay its success. It is proposed that candidate rivers for pilot projects are selected from rivers where public involvement can make a significant and visible difference in a short period. Selecting short parts of rivers where improved knowledge about land use and behaviour that negatively impact on river health will quickly show results, will boost the programme and the front runner communities. It will also be an ideal environment in which to find out which support approaches work best for communities who adopt their river. Complex situations, where

[70] Literature study of monitoring models as part of this Adopt-a-River Programme

[71] Waterwatch Australia – quoted in Literature study of monitoring models as part of this Adopt-a-River Programme

[72] The aspect not specifically mentioned, but vital according to the Canadian stewardship model, is to secure funds for long term involvement – assumed to be included as part of planning

pollution by industry and farming or serious competition exists for resources, could then be added to the programme once it is fully fledged.

Planning, also of funding requirements, is vital to the success of the programme. *Ad hoc* allocations of unpredictable amounts are not conducive to a sustainable initiative. It is proposed that funds for management and execution of the programme are ring-fenced at national level. An annual allocation by the champion, for example the Department of Water Affairs, to establish, guide and track the programme for at least five years, will be required. Funds need to be earmarked for pilot projects, research and training during that period. It is assumed that the policy and law elements are in place that procurement of a host institution can be formalised in 2009 to achieve start-up of the pilots according to plan.

The implementing institution, which for illustrative purposes could be WESSA, has to, during the start-up period, identify resources and expertise needed. The institution has to have resources to market the programme and create awareness. Funding needs at the onset would include funds to procure a national programme coordinator, set up a resource centre and standardise procedures and communication channels. Funds also have to be made available for training described below.

Once the programme has been rooted, regional tiers will gradually be needed and sponsors can come on board for specific elements of the programme. After the first five years, the programme should be in a position to generate its own funds for operation. It may in exceptional cases be necessary to still continue sponsoring the national coordinator or management team after this period. The national programme manager would be in a position to motivate extension of the budget for this purpose.

Making *connections* would entail identifying institutions that can participate in the programme and ensuring linkages to relevant national programmes. In order to make a contribution the programme has to be well integrated with existing initiatives that serve the environmental and development needs of South Africa or parts of the country. Working for Water is an example of an initiative where synergy may be found and where cross-resourcing may result in simultaneously meeting several objectives.

The need for a full time programme coordinator from the onset predominantly stems from the time consuming nature of this task to integrate ongoing programmes to effectively achieve caring for rivers.

Training of leadership at the river bank will enhance project implementation. It will be necessary to decide how project level participants will be recruited, trained and retained. Apart from formal training, either on site, or at the central resource centre, training can also take on the form of providing forums where the roleplayers can learn from each other. Communication channels are important. Expertise can be sourced nationally, regionally or locally. Additional reference

materials, training aids and method manuals may be required. An accredited and effective training programme will enhance the scientific credibility of the Adopt-a-River programme.

The components of an institutional framework that would outline the Adopt-a-River programme are:

- Policy/law
- Awareness/marketing/communication/lobbying
- Project identification and evaluation
- Demarcation of boundaries/responsibilities
- Identification of resource/expertise needs
- Procurement
- Information/guidance
- Identify responsible institutions/allocate responsibilities
- Support projects and establish resource centre
- Standardise procedure to manage and perhaps monitor quality of the resource
- Provide funding and prioritise application of funding, as well as actual disbursement of funds
- Programme/project management
- Education/training
- Project implementation
- Website/data base
- Monitoring/sharing data
- Regulation/enforcement

A proposed allocation of respective responsibility to the three tiers of "government" follows in the table. At the onset it is desirable that the implementing agent is vested at national level, to represent national government. Over time, it may be more appropriate to insert regional level capacity in certain provinces, dictated by the rate at which rivers are adopted in each province. The capacity at local level is expected to gradually increase as any project matures, and it will then be appropriate that responsibility for certain functions evolve to local level (*also refer the summary figure on p41*).

Components of Institutional Framework allocated to roleplayers at three government levels	National Gov/ DWA**	Implementer at national level**	Regional structure/ partnership**	Local parties**
Policy/law	x	(x)		
Awareness/marketing **Communication/lobbying**	 (x)	X X		(x)
Project identification **Project evaluation**		 X	(x) (x)	X
Identification of resource/expertise needs **Procurement**		x x	(x) (x)	(x) (x)
Information/Guidance		X	(x)	

Programme management		X	(x)	(x)
Identify responsible institutions **Ensure linkages to relevant national programmes** **Demarcation of boundaries**	 (x) (x)	x x x		(x)
Support **Resource centre** **Standardise procedures** **Oversee experts**		x x x X	(x) (x)	
Funding **Prioritise funding** **Disburse government funding**	x	(x) x X		(x)
Education/training		X		
Project implementation				X
Programme reporting	(x)	X		(x)
Website/Data base		X		
Monitoring/Sharing data				X
Links to Regulation/Enforcement	x	(x)		

(***Responsibilities marked in brackets refer to ad hoc inputs and interfaces with the programme at national level. Regional and local roles marked in this fashion indicate the stage after the initial phase, once the programme has consolidated and all tiers are operational, where functions will be taken over from the Implementing Agent at an unpredictable pace*)

The above proposed allocation of roles and responsibilities that stakeholders will have to perform did take cognisance of the match with their official functions[73].

From planning to action

Adopt-a-River Champion

A central unit has to function as task force for Adopt-a-River, to champion the programme from the start, for the programme to have any chance of living beyond the pilot implementation phase. It will be necessary to create a certain critical mass and momentum for the programme to continue on its own after the first five years.

Empirical evidence points to the need for a full time coordinator person/s with sufficient funds to be dedicated to the task.

Contextual aspects

The Adopt-a-River programme is congruent with the vision and objectives of the Department of Water Affairs and of the portfolio committee of Parliament as discussed in Chapter 1.1. The programme will also fit with Wildlife and Environment Society (WESSA) policy, namely to integrate conservation and sustainable development; collaborate with appropriate organisations

[73] WRC Report TT 328/08 by S Pollard and T Coussins, Appendix A p91-93, tables 8/7, Community-based governance of freshwater resources in Southern Africa

and individuals on projects, resource production, events and evaluation. WESSA also strives to ensure that all initiatives should be both educationally and financially sustainable.

Along with the Natal Parks Board and the Environmental Education Association of South Africa, WESSA was instrumental in the evolution of low-cost, co-operative resource materials developed through the informal Share-Net network. WESSA publications like African Wildlife and The Naturalist also play an important role in environmental education.

Lessons learnt from Waterwatch Australia entail determining appropriate goals for the programme that are achievable, tangible and positive. Objectives should be definable and measurable. Also that it is important to place realistic time frames on reaching the goals, taking into account the number of people and resources that are available to perform the necessary tasks.

Where manpower resourcing constraints exist, it may be worthwhile exploring synergy with objectives of Working for Water. Two issues that link the Working for Water initiative with the Adopt-a-River Programme are awareness creation and ecosystem services. Ecosystem services are based on the premise that the livelihood in a community has to be higher after any intervention, which means payments are made by the programme for labour inputs that relate to improvements socio biodiversity, carbon footprint reduction and improved water/land use and yield. The potential link with the Adopt-a-River Programme will be by choosing poverty stricken nodes and rivers with water quality problems that can be solved by ecosystem services.

Awareness/communication/marketing

The first step will be to produce a comprehensive national communication strategy with an implementation plan and adequate funding. It will be necessary to arrange a road show that will raise awareness of the issues relating to river health. Behaviour has to change in many cases where people along upper reaches of the rivers cause dire circumstances for those downstream.

A regular newsletter has to be established, to communicate activities to the interested public. It is envisaged that economy of scale can be achieved in this way, if groups who are actively caring for their river, share experiences with others. The learning curve for other groups can be flattened by sharing lessons learnt in this manner, say at quarterly intervals. Alternatively, at the start, sending a newsflash in a few established newsletters could also be a fruitful avenue to achieve the same goal.

Once-of river cleanups are a very effective instrument to achieve awareness of the variables that play a role in river health. To improve the river's health, however, a once-of activity is of negligible value. (Ten years of such cleanups will be needed to make a discernible difference to water quality in the river, if no other rehabilitative measures are in place!)

To embark on several initiatives with a pilot river in every province, is probably too ambitious unless the specific goal is to purely achieve awareness with the first series of pilots.

Networking

The Department of Water Affairs has regional offices in all nine provinces, while Provincial Water Sector Forums also exist in many provinces, where cross cutting issues are addressed. Several Catchment Management Agencies are furthermore gradually coming of age.

WESSA has nine regions which closely match South Africa's nine provinces: only Limpopo and North West Province are grouped with others to fall under northern provinces. WESSA furthermore has a well established Eco Schools programme with representation in main centres and in most provinces.

Awareness creation and associated behaviour change envisaged under Adopt-a-River also link naturally with the themes embodied by Working for Water. The reciprocal is that Working for Water can meaningfully and efficiently perform implementing agent duties during the pilot projects that will precede full scale implementation of the Adopt-a-River programme, since Working for Water already has a network of implementing arms in all nine abovementioned DWA regions.

Private Public Partnerships to perform ecosystem services will create further opportunities for linking with the Integrated Natural Resources Management Programme (which addresses more than water in the catchments).

It is recommended that the implementing agent of Adopt-a-River develop a national coalition or network of organisations, from institutions such as the above, which can be instrumental in information dissemination to potential audiences of the Adopt-a-River Programme.

Provincial boundaries not matching watersheds or ecosystems may not necessarily be the best way to harmonise jurisdiction for natural resources. This aspect has to be more closely investigated during the pilot phase of Adopt-a-River.

The Adopt-a-Spot initiative[74] in the Richards Bay/Empangeni Area could potentially provide synergy to benefit both programmes – also to be more closely investigated during the subsequent pilot phase. eThekwini, Coca Cola and South African Breweries allocated awards to recognise many initiatives with an environmental theme in KwaZulu Natal and the Cape Province.

The Land Service movement has already embarked on a programme called Rescue our Rivers/Red ons Riviere, which is essentially an initiative to adopt neighbourhood rivers, and ideal building block of the national Adopt-a-River initiative. The programme could be one of the spring boards for Adopt-a-River if a partnership arrangement appeals to both programmes.

[74] http://www.richemp.org.za/tulipuMhlathuzeInternet/repository/IDP/

A myriad of Friends of/Vriende van groups exist many of which have already expressed an interest in an umbrella body like the envisaged central unit and resource centre of the Adopt-a-River programme.

CapeNature is also a potential partner to engage communities in conservation action, to "…ensure the long-term conservation of biodiversity while improving the quality of life in local communities."

It is recommended that the interest in the Adopt-a-River programme already shown by the public be harnessed as soon as is viable and that available resources be pooled to achieve this worthy cause. This programme can be enhanced through partnerships with civil society, and it is believed that, if diligently managed, it would become true that the whole of this programme would be greater than the sum of the parts.

Handbooks have been compiled that describe how to find working partners and how to form solid working relationships in order to achieve diverse goals related to river conservation projects. WESSA makes available an action kit for school environmental clubs.

Training of project leaders

The Adopt-a-River implementing agent has to provide sufficient tools, resources and support for participants from the public to understand how human behaviour influences natural resources, and to engage in the work required to effect change.

In certain countries national centres deliver a range of services related to training people (in many cases volunteers) involved at the river edge[75]:

- The Knowledge Development Centre that provides support for research to improve the understanding of volunteerism
- The Information, Capacity-Building and Awareness Centre that manages a resource centre, an awareness campaign and a capacity-building programme
- The Community Support Centre that supports organisations to develop and test innovative methods for sustaining volunteerism

During the pilot phase of Adopt-a-River, it will be possible to assess what level of central support and resourcing the South African programme would need.

Incentives

Incentives have to exist that will help sustain the initiative to involve the South African public in caring for the condition of our rivers. The socalled Green Scorpions[76]are an appropriate channel

[75] Canadian Stewardship Programme Communities Network – refer Literature study of monitoring models as part of this Adopt-a-River Programme

to deter river water pollution by those who sacrifice the environment for making profits. In most cases, poor condition of river water is a consequence of an adverse combination of settlement in relation to the river, rather than deliberate and active pollution.

It is proposed that an award such as a star grading for healthy rivers, may be the appropriate tool to apply as incentive for communities to be aware of the influence of their behaviour on the river. (The abovementioned Adopt-a-Spot programme could serve as a model here. Publishing criteria for the award probably would also motivate community behaviour towards desired outcomes).

The Eco-Schools programme for example encourages schools to make a commitment to a healthy environment with an internationally recognised award scheme that accredits schools by means of a green flag. The programme was initiated by WWF-SA and WESSA in South Africa five years ago and is endorsed by the Department of Education and funded by Nampak. Almost one thousand South African schools are currently registered with the programme.

Funding

To create a solid foundation for Adopt-a-River activities, stable funds from diverse sources have to be dedicated to the cause. It might be necessary to have seed funding to assist priority needs on projects at the start of the programme. It would however be preferable to support project teams with finding their own sponsors rather than being their actual sponsor, if at all feasible (refer Chapter 1.5). Setting a precedent that cannot be sustained should be avoided.

It has to be borne in mind that the overseas models that heavily rely on all tasks to be executed by volunteers may not be replicable and sustainable in South Africa. During the pilot phase the advantages and limits of involving unpaid *vs* paid labour on the tasks of Adopt-a-River will have to be thoroughly tested.

In many cases it would be necessary to pay workers to perform regular river bank cleanups. In the experience of the Duzi uMngeni Conservation Trust (DUCT) group,[77] synergy was achieved from getting potential polluters on board to facilitate contact with the community, as well as increase the resource base. In principle even if the programme cannot pay experts or labour, that does not necessarily imply that volunteers are the only solution.

It is proposed that the implementing agent develop criteria and processes for funding, as opposed to financially supporting, the activity of community groups. Financial backing from an outside source may well with the right incentives become available to bridge the gap.

Monitoring and data management

[76] Gauteng's Environmental Management Inspectors audit compliance and investigate incidences of trading in endangered species

[77] Dunlop tyres sponsors labour to remove litter from the reach of the river flowing past the premises

Monitoring and reporting also provide a means to determine and report on successful approaches to Adopt-a-River, and to share this information across a national Adopt-a-River network.

Identifying a clear purpose for monitoring is a first and very crucial step for an effective monitoring programme and should be based on an analysis of issues affecting the catchment and/or water body. This will mean that the data collected is of a quality to suit the group's objectives, and those using the data can do so with confidence. The quality and reliability of data must be reported to data users so that information can be used with confidence for comparison across catchments and through time.[78]

For an implementing agent to be able to enforce data quality when there is no reciprocal contract and payment for such data, is however most unlikely. Formalised agreements on commitments are often made, but until punitive measures accompany these, enforcement is difficult, especially when roleplayers are not employed and remunerated for specific deliverables.

Monitoring has a valuable education component, or at the other end of the spectrum may be a long-term investment in support of sustainable water resource development.[79] However, the benefits of monitoring are not likely to outweigh the sizeable investment and maintenance costs in terms of the infrastructure required to sustain meaningful monitoring. It would follow that groups whose primary purpose is education and constituency-building ought to adopt simple, easy-to-use assessment methods and may not be able to justify a stringent quality assurance plan.[80]

In practice the data and results from monitoring by communities are seldom used in a scientific manner[81]. The costs of monitoring generally far outweigh the benefits, except where the end-goal is to raise awareness of local residents of their behaviour that adversely affects water quality. School children are also very receptive to principles experienced in a hands-on manner.

Water testing kits of varying sophistication are readily available and mostly very affordable. The danger exists that lay users could be causing confusion and alarm when using these inherently inaccurate yardstick kits, intended purely as flag type indicators, and useful education tools, to unnecessarily excite the public in a case where the test results are not scientific. The kits should be used in the manner for which they were intended, and certainly not used as triggers for mass action campaigns and tabloid stories, without resorting to expert interpretation.

[78] Cassidy, 2003, Waterwatch Tasmania as quoted in Literature study of monitoring models as part of this Adopt-a-River Programme

[79] Literature study of monitoring models as part of this Adopt-a-River Programme

[80] http://www.iowater.net/

[81] The City of Cape Town reported that on public programmes data and information collected were not used for a specific purpose other than creating awareness. Generally no laboratory analysis took place.

It is therefore recommended that serious monitoring be deferred until the programme management has sufficient capacity to support the concomitant reporting tools. Monitoring can be used as a tool towards awareness creation, and be a source of fun and learning for school children.

Monitoring and reporting of actual results may require the development of performance indicators. The use of electronic means to make reports widely available could be a challenge. As was mentioned in Chapter 1.4, access to electronic devices is limited to environments with electricity and communication links of a different nature would be needed to share information with rural communities.

In preference to creating extensive data repositories for results of water quality monitoring by the public, it might be more effective to let local residents have a mechanism by which to report issues in their river reach for inclusion in national programmes.[82] Replicating the NMMP etc at local level in priority areas may even be viable if the funds were to be available. At present the cost of transport of samples from remote areas and other logistics are prohibitive[83].

It is proposed that an informative website be used as primary communication tool and that requests for information can be directed at the central management unit, and circulated to others via this route. The need for and viability of fliers and radio messages and phone-in or sms opportunities can be established during the pilot phase. The model envisaged is a hybrid moulded along the lines of newsletters such as "The Water Watcher"[84], newsletter for the Hunter-Central Rivers Waterwatch Network, and WESSA Share-Net with its public domain resources. The Water Watch amongst others is used to give feedback on programmes and special upcoming events as well as information on grant and funding opportunities.

A number of regular events with publishing are already on the national and international water calendar[85]. It may be meaningful to launch initiatives to eg. coincide with World Wetlands day in February, National Water Week in March, along with World Water Day and World Meteorological Day, National Sanitation Week in May, and World Environment Day in June or Water Monitoring Day in September.

Some of the issues that ought to receive attention when starting any monitoring programme are insurance cover, permission to monitor on private land, safety precautions[86], care for the environment (eg. no littering) and making sure results are credible by evaluating and reviewing results.

[82] Toxicity and radio-activity for example are not suitable for monitoring by the public and would be better addressed in existing national monitoring programmes (ref procedural details in Monitoring Manual developed as part of this study)

[83] Rand Water experience quoted in Literature study of monitoring models as part of this Adopt-a-River Programme

[84] http://www.waterwatch.nsw.gov.au

[85] Local Government/mVula Trust water and sanitation diary 2008

[86] http://www.waterwatch.org.au/publications/safety.html

Closing remarks

With regards to quality assurance of drinking water, chemical analysis and stringent quality control are paramount. In Adopt-a-River, the aim is to have healthy river water ecology, in laymen's terms that means that water has to be fishable and swimmable.

Where water testing is the crux of water quality management to identify water borne diseases and for example pollution from upstream land use practices, water testing in the context of Adopt-a-River would be a communication and education tool, rather than a source of data or reporting for scientific use.

It cannot be over-emphasised that knowledge and behaviour change would be at the centre of the objectives of Adopt-a-River. Notwithstanding the awareness rather than scientific objectives of the programme, coordination of the programme with such wide geographic spread and diverse activities and interests will need to be very professionally executed. If the incumbent(s) of the central coordinating unit does not take the champion role seriously, the consequences will be noticeable.

Lack of capacity would manifest in:

- inequitable attention to rivers in some regions/provinces compared to others
- insufficient funds or stop-start disbursement of funds
- publishing only existing projects as achievements of the programme
- terminated projects
- complaints regarding response times to queries
- inability to prepare business plans
- 'unbankable' projects
- administrative bottlenecks
- activities incongruent with laws
- prevalence of risks that cannot be managed eg. health and safety risks
- projects that ought to be undertaken by scientists are left to lay people
- excessive reliance on professionals rather than stakeholders for routine tasks
- website that is not sufficiently maintained
- unused data cluttering the data base
- reporting of very little substance
- poor value for money achieved

1.8 RECOMMENDATIONS REGARDING INSTITUTIONAL/MANAGEMENT STRUCTURE TO BE CONSIDERED DURING PHASE 3 PILOT FOR THE ADOPT-A-RIVER PROGRAMME

Context

The role of government in river health is to create an enabling environment where South Africans can and will start to care for their water resources, which is why the relevant portfolio committee prompted mobilisation of an Adopt-a-River programme.

The Adopt-a-River programme will be an umbrella programme, not replacing any existing initiative but providing coordination of efforts. An institutional framework and governance structure for this purpose will be the only chance of successfully implementing a programme such as Adopt-a-River.

Implementation and organisational arrangements

Coordinating the Adopt-a-River initiatives to achieve sustainable results on a national scale is a formidable task. Although the enabling legal instruments do exist, there is no single institution in South Africa with the capacity to host and implement the programme nationally. In practice it will be necessary to form partnerships between authorities, agencies, concerned community organisations and the public, to be able to adequately fulfil the roles involved in adopting rivers.

It is proposed that this programme be set up to function similarly to the SADC Regional Environmental Education Programme that is hosted by SADC[87] and implemented by WESSA[88]: A full time national programme manager has to be employed to coordinate all activities of an Adopt-a-River nature in all provinces. It is envisaged that at the onset there will be only one person on the team. In other words, there will not be any administrative or support staff until such time that there is more than mere interest in the project. The work load will dictate the pace at which staff will be appointed to the programme at national and subsequent regional levels. What this means is that at the stage when only single rivers in a few provinces have been adopted, there will be no provincial or regional layers in the structure. The first pilot rivers will have to be nationally co-ordinated by a single person and later a centralised team, until such time as the intermediate layers in the structure are warranted by the number of adopted rivers that have to be coordinated by the team.

It will be imperative to have a dedicated, full time champion or programme manager at national level for the Adopt-a-River initiative from the onset of the programme, even if there theoretically is only one river project on the initial list. This individual has to co-ordinate all activities of an Adopt-a-River nature.

It would not be prudent to tax the DWA Regional offices in their current form with additional workload from the Adopt-a-River initiative. To launch and sustain this programme in the regions need much more implementing capacity than available from existing institutions alongside their normal duties. Procurement of additional resources with the necessary capacity and skills would be imperative, failing which a dedicated implementer body will be needed to perform outsourced functions. It is important that regional offices of national departments are part of the learning and receive formal feedback, but these should not be made responsible for execution of the Adopt-a-River programme.

[87] Southern African Development Community
[88] Wildlife and Environment Society of South Africa

An experienced individual should be tasked to mobilise institutional and community stakeholders, a well as potential sponsors and patrons before launching a pilot along a specific river reach.

Roles and responsibilities as proposed in the attached table *Proposed Institutional Framework and Government Structure: Roles and Responsibilities allocated to Roleplayers at start-up (and with progressive expansion)* should be negotiated and agreed amongst roleplayers. It is foreseen that adjustments of roles may be warranted in certain regions or perhaps types of projects, which would become evident as implementation progresses.

NOTE

Catchment Management Agencies would have been a logical choice as implementer for the Adopt-a-River programme, since the role and responsibilities of Adopt-a-River implementing agents are included in their mandate. This mechanism, to oversee water related activities according to the policy, is however in its infancy and the phased implementation means that no more than half a dozen of these bodies have been established to date. The timeframe for having all 19 areas fully functional makes it impractical to wait for this agency to support and implement Adopt-a-River initiatives.

Volunteers vs paid workers

Stakeholder involvement is in keeping with South Africa's constitution and cooperative engagement at local level makes or breaks long-term sustainability of any initiative.

It has to be borne in mind that the overseas models that heavily rely on all tasks to be executed by volunteers may not be replicable and sustainable in South Africa. South Africa has a different geographic and demographic profile to America, Canada and Australia that successfully implemented Adopt-a-River type initiatives. The population of South Africa is very young compared to the populations of the developed world – one third of South Africans are under the age of 15 years and only 7% over 60 years of age.

Working age adults with school going children are less likely to offer their services for community work that their counterparts who are 20 years older. In contrast many programmes in South Africa successfully use unemployed people to perform duties for a salary.

During the pilot phase the advantages and limits of involving unpaid vs paid labour on the tasks of Adopt-a-River will have to be thoroughly tested.

Partnerships for implementation

In the Adopt-a-River programme design a greater focus was placed on public awareness, than on actual monitoring and the results thereof. Therefore DWA Directorate Communications has to be involved from the onset of the pilot phase.

The Adopt-a-River programme would also benefit from working with other initiatives that have a proven track record on environmental programmes that involve the users. Working for Water, WESSA and the Plastics Federation of South Africa have amongst others offered to be involved in the pilot phase and to make available their expertise and structures.

To bring on board the experience and resources of Working for Water will achieve great synergy in natural resource management and may concurrently meet objectives of social upliftment. It is proposed that official links are also formed with environmental awareness programmes of the Plastics Federation of South Africa (e.g. PETCO, PSPC, Buyisa-e-bag and Enviromark, even a fashion parade where recycled plastic was the material of choice for garments!)[89], the Wildlife and Environment Society of South Africa and established Friends of groups. Resources from Men on the Side of the Road would potentially be available to assist with manual tasks.

Candidate rivers to pilot the programme

It is recommended to very carefully select a few pilot projects where the capacity exists to test the parameters which will shape the future of the programme. To embark on several initiatives with a pilot river project in every province, is probably too ambitious unless the specific goal is to purely achieve awareness with the first series of pilots.

Ideally the programme ought to start off with rivers where behaviour change by the public on the river banks will make a visible positive difference in a short time span, once the people have been sensitised to the link between their actions and the state of the river downstream. Complex situations, where pollution by industry and farming or serious competition exists for resources, could be added to the programme once it is fully fledged.

The river reaches below have been identified by the study team and primary stakeholders as the first candidates for piloting Adopt-a-River implementation, congruent with the objectives of awareness and behaviour change and visible outcomes in a reasonable period.

- Vaal River – Vaal Barrage and the Middle Vaal River
- Lower Klip River in Gauteng
- Mtata River near the city in the Eastern Cape.

Funding

The need for this Adopt-a-River programme was identified in parliament. The former Department of Water Affairs and Forestry was appointed to design the programme, but once the programme is functional, it will be spanning several departments and jurisdictions and it would be unwise to have the programme contend for resources with other priority projects inside a department on a year-on-year basis.

[89] www.plasticsinfo.co.za

To create a solid foundation for Adopt-a-River activities, stable funds from diverse sources have to be ***dedicated*** to the cause. Spontaneous allocations of unpredictable amounts are not conducive to a sustainable initiative. Adequate funds for the Adopt-a-River programme are a prerequisite, and it would be near impossible to implement this programme without dedicated funds.

Candidates for host institution are the Departments of Water Affairs, of Agriculture and of Environmental Affairs. Pending final inputs from the parties, it is assumed that the Department of Water Affairs, who has championed the design phases of Adopt-a-River, will continue as programme host, and will find a suitable national implementer or co-ordinator, in the form of an agency that would be in a position to support the national programme from the pilot stage.

It is proposed that funds for management and execution of the programme are ring-fenced at national level. An annual allocation by the champion/host institution, for example the Department of Water Affairs, to establish, guide and track the programme for at least five years, will be required. Funds also need to be earmarked for research and training during that five year period.

The policy and law elements are in place to select a host institution and it is assumed that procurement of an institution to function as implementer can be formalised in 2009 to achieve start-up of the pilots according to plan.

The national programme coordinator (and, eventually implementing team) should have funds to coordinate and administer the programme, provide strategic guidance to the programme, be a contact point and follow up mechanism for queries, perform marketing and fund raising, develop programme publicity and training material, and also ensure linkages with relevant national programmes. The national implementer institution has to apart form resources to market the programme and create awareness, procure a national programme coordinator, set up a resource centre and staff and standardise procedures and communication channels for the above and the pilot projects.

The provisional estimate at this stage of the funds needed to orchestrate the Adopt-a-River with a full time national coordinator, in the above manner, excluding funds for project level work, is R3 million per year.

This estimated amount assumes that a single pilot river will be managed in certain provinces at the onset of the programme, and that there is no immediate need for any intermediate structures at regional level until additional river care teams come on board in each province.

For a period of five years the coordinator/implementer function will cost say R17.1 million (escalation included). The rate at which the programme grows during these five years will determine whether the structures are expanded and what the associated costs will be after this

period. Any budget estimate beyond the start up phase of five years will therefore be merely speculative.

The pilot projects are expected to cost about R 700 000 each per year. Assuming there will be four distinct pilots in four geographic locations, which can all be orchestrated from a central location, the budget will be about R2.8 million per year. This number can be fine-tuned once actual pilot river selection has been finalised. It is also likely that economy of scale and savings can be achieved with the resources of Working for Water if the pilot sites are wisely chosen.

For two years the budget for work at pilot river level will be no more than R5.5 million. Part of the responsibility of the national coordinator(s) will be to mobilise funds for activities at regional level, hence it should not be necessary to budget for project work after the second year.

After two years there would be no need for national funds to sustain any of the original pilots. The projects would be self funding if they were labelled successful. If the pilots failed after this time, there would be no reason to continue with that pilot. The resources can be better applied elsewhere.

It might in rare cases be necessary to have seed funding to assist priority needs on projects at the start of the programme, in the same manner as with the pilot rivers. It would however be prudent to support project teams with finding their own sponsors rather than the Adopt-a-River programme being their actual sponsor, if at all feasible. The budget for the national programme should therefore preferably *not* include operating expenses to rehabilitate individual rivers, setting a precedent that cannot be sustained should be avoided.

Launch

It is recommended that Adopt-a-River be launched in the pilot regions in a visible manner and with high media involvement. An experienced individual has to be tasked to mobilise institutional and community stakeholders, a well as potential sponsors and patrons before launching a pilot along a specific river reach.

A road show should be designed by DWA Directorate Communications. Components of mini-SASS[90] may be of interest to communities who want to systematically explore the health of their water resource and river bank ecology. Working for Water also has in-depth experience in hands on community involvement.

A star grading for the visual aesthetics of a river and its immediate environment could be the focus of a competition: for example towns are nominated country wide for maintaining the river reach adjacent to the town at say a 3- or 5-star river category, etc. Research would be needed to quantify yardsticks.

[90] WRC laymen's identification of invertebrates

Win-SA[91] may be useful as an instrument to communicate progress on the programme. WESSA may be amenable to providing data and resource support to Adopt-a-River. It has to be ascertained if there is a manner in which the public could have access to resources at WESSA. Currently the organisation provides information to paid membership. There may be merit in exploring a lesser, perhaps group-membership with limited access via the Adopt-a-River programme.

Data collection and monitoring

Effective management of data generated in the process of monitoring at river sites will add a significant load to the institutional structures. Identifying a clear purpose for data collection or any form of monitoring is a very crucial step when adopting a river and should be based on an analysis of issues affecting the catchment and/or water body. Although it is vital that achievements of the Adopt-a-River programme are published, most roleplayers are unlikely to justify any stringent quality assurance plan that would be prescribed for national data bases.

It was concluded that groups whose primary purpose is education and constituency building ought to adopt simple, easy to use assessment methods. Where a serious need for scientific records exists at a site, it may be more appropriate to motivate extending the national monitoring programmes to include this site, rather than start informal monitoring by volunteers under Adopt-a-River. These aspects are covered in greater detail in a separate report on monitoring tools.

Regardless of the above, informal monitoring does have a potentially important function: Data collection can be a tool to involve the community, e.g water sampling by small children with simple kits, which largely does away with the need for rigorous quality control to qualify for inclusion in formal data receptors. Involving the youth in monitoring or clean-up activities, is an opportunity for hands-on education in best practice at an impressionable age. Certificates of attendance will be a great motivator for participants.

[91] Water Information network South Africa

Adopt-a-River Programme
Proposed Institutional Framework and Government Structure:
Roles and Responsibilities allocated to Roleplayers at start-up and with progressive expansion

Start of Programme Implementation / Pilot Stage and when adopted rivers are far apart

Fully Functional Programme in certain catchments (or provinces or regions) A, B & C* etc - only when economy of scale can be achieved**

Task / Responsibility	Level in Government Structure			Level in Government Structure				Remarks
	National Level Government Department	National Level Implementer /Coordinator±	Local Parties	National Level Government Department	National Level Implementer /Coordinator	Intermediate Layer Coordinator∂	Local Parties	
Policy/law	●			●	○			
Awareness/marketing Communication/lobbying	 ○	● ●		 ○	● ●		○	∂ where for example in catchment F rivers f1, f2, f3, f4, f5 etc were adopted, adding a new layer to coordinate the local parties is warranted
Project identification Project evaluation		 ●	●		 ○	○ ●	●	
Identification of resource/expertise needs Procurement		● ●				● ●	○ ○	
Information/Guidance		●				●		
Programme management		●			○	●	○	
Identify responsible institutions Ensure linkages to relevant national programmes Demarcation of boundaries	 ○	● ● ●		 ○ ○	● ● ●		○	± if in catchment A only river a1, catchment Q river q2, q3, catchment T, river t1, etc were adopted – national level responsibility remains
Support Resource centre Standardise procedures Oversee experts		● ● ● ●			○ ● ● ○	● ●		
Funding Prioritise funding Disburse government funding	●	○ ● ●	○	●	○ ● ●		○	
Education/training		●			●			
Project implementation			●				●	
Programme reporting	○	●		○	●		○	
Website/Database		●			●			

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Monitoring/Sharing data			●				●	
Links to Regulation/ enforcement	●			●	○			

KEY

******* *During design generic terminology is used merely for illustrative purposes. The pace at which rivers are added to the programme will dictate what the logical unit for intermediate management and implementation layers in the structure will be*

● *Responsible for the task in the stage of the programme indicated*

○ *Ad hoc inputs during the pilot and inception stages*

∂ *Intermediate layer in hierarchy is inserted to coordinate Adopt-a-River activities in geographic entities with many rivers on the programme. Where there are few adopted rivers in a catchment, subcatchment, environmental entity, province, region or cluster – the programme responsibilities are orchestrated from national level until economy of scale can be achieved with delegating certain responsibilities to a new intermediate level*

➡ *A shift takes place in responsibility, once the programme reaches a size in one area that warrants an intermediate level in the structure*

○ *Secondary responsibility for the task in deserving situations, once the programme reaches a certain size in any geographic area, also to support shifted primary responsibility form one tier to the next*