



Supporting the development of effective and efficient River Basin Organizations in Asia. A discussion of the application of organizational benchmarking approaches

Ian W Makin, Yvonne P Parks, Wouter Linklaen Arriens

Prepared for a NARBO Consultation Workshop
Batu-Malang, Indonesia
November 29th to 30th, 2004



Contents

Abstract.....	i
Introduction.....	1
Approaches to Performance Management.....	3
What is Performance Management?.....	3
How can we define and measure performance?.....	4
Evaluation typologies.....	4
Performance indicators.....	8
Benchmarking and Performance Management.....	11
Definition of Benchmarking.....	12
Examples of active Benchmarking in the Water Sector.....	12
Implementation of Benchmarking.....	14
Part I Investigation.....	15
Part II Operation.....	16
Conclusion.....	16
References.....	18
Annex I Peer Review.....	1
Annex II Developing a benchmarking service.....	1
Functional Specification for the River Basin Organization Benchmarking Website Prototype.....	1
Annex III Examples of Performance Indicators.....	1
Examples of Indices from OIBS:.....	1
Examples of Indices from the Common Assessment Framework:.....	1

Figures

Figure 1 Standard Balanced Score Card (after Kaplan and Norton, 1992).....	21
Figure 2 Proposed Balanced Score Card for River Basin Organizations (developed from Kaplan and Norton, 1992).....	22
Figure 3 Example of mapping proposed indicators to Balanced Score Card (Stakeholder perspective).....	23
Figure 4 Benchmarking Process flowchart - UK Government.....	24

Tables

Table 1 Evaluation typology for river basin organization performance, after Schumann & Ransley (1995).....	5
Table 2 Suggested minimum profile for an effective RBO for discussion purposes (after Szakonyi 1994).....	7
Table 3 Initial indicators proposed for RB Performance Evaluation.....	10
Table 4 Revised indicator pool, grouped by BSC perspective areas.....	10

Abstract

The initial work plan for the newly formed Network of Asian River Basin Organizations (NARBO) identified the development of systematic methods to support the development of effective stakeholder driven river basin organizations as one of NARBO's priority activities. The Asian Development Bank (ADB) and the International Water Management Institute (IWMI) agreed to lead the investigation and development of appropriate supporting tools in collaboration with members of NARBO. This document is presented to facilitate discussions at stakeholder workshops amongst NARBO members.

The paper is structured with a brief overview of the rapid development of river basin organizations in response to the international efforts to increase stakeholder involvement in river basin management (section 1); an introduction to the concepts and approaches to performance management introducing benchmarking and peer review (section 2); an expanded discussion of benchmarking approaches proposed as applicable to river basin organizations (section 3); and a model for the development and implementation of a comprehensive benchmarking service for use by river basin organizations that seeks to improve the efficiency and effectiveness of their service delivery (section 4). Section five summarizes the discussions and presents brief conclusions.

The draft report includes three annexes. Annex 1 discusses the objectives of the inclusion of Peer Review as a core component of the Benchmarking initiative. Annex 2 presents a outline functional specification for a demonstration implementation of a web-enabled benchmarking service. Annex 3 presents examples of Performance indicators used in the Irrigation benchmarking service and also the Common Assessment Framework.

Supporting the development of effective and efficient River Basin Organizations in Asia. A discussion of the application of organizational benchmarking approaches

Ian W Makin¹, Yvonne P Parks², Wouter Linklaen Arriens³

Introduction

There is increasing recognition that water and water resources management will be critical to the continued economic and social development in SE Asia. The challenges of the millennium development goals (MDG) are coming into sharp focus with UNESCAP recently estimating that some 688 million people in Asia do not have access to safe drinking water and over 1,888 million do not have adequate sanitation.

The World Health Organization (WHO) has estimated that nearly two million persons per year perish due to water and sanitation related issues, with a major proportion of these deaths occurring in the Asian region. Improving water services will reduce the incidence of childhood water related diseases reducing school absences leading to improved education and more economically active populations with positive impacts on household and national economies. The impact of improved water services is expected to be particularly important for females, both adult and children, as they often take a disproportionate role in obtaining water for the household, restricting opportunities for other economic or development activities, most critically education.

At the same time, irrigated agriculture and industrial demands compete with municipal and environmental requirements for water as growing and increasingly economically active urban communities demand secure water supplies and access to natural eco-systems for recreational activities. The CGIAR Challenge program on water and food seeks to enable increased agricultural production with no increase in water abstraction for agriculture. The Global Water Partnership (GWP) and others promote integrated water resources management (IWRM) strategies to replace the former, largely sector based, approaches to water resources development and management. Multi-stakeholder participatory management organizations are being adopted to bring decision making to the lowest appropriate levels as agreed in the Rio conference (1992).

As a result of the greater awareness of water issues, and specifically the need to improve governance of the water sector, there is recognition of the need to improve the performance of water sector organizations. This recognition has led to the development of a number of initiatives aimed at evaluating organizational performance with the ultimate objective of initiating focused programs for organizational improvement. These initiatives are generally based on the total quality management (TQM) concepts of benchmarking and continuous improvement that have emerged from the commercial and industrial sectors and, more recently, the public service organizations.

¹ International Water Management Institute, Bangkok. i.makin@cgiar.org

² Independent Consultant, Bangkok. Yvonne@the-parks.com

³ Lead water specialist, Asian Development Bank, Manila. wlinklaenarriens@adb.org

River basin organizations are a central component of the most recent evolution of the institutional framework that defines how water is managed at the river basin or strategic level, generally referred to as water governance. Valensuela (2003) defines governance as “the manner in which power is exercised in resource management (social, human, economic and natural aspects), the organization of decision-making processes, of the management and control. It is also the way in which government communicates (in both directions) with the citizens in general, the organized groups, NGOs, para-public institutions, private institutions etc”.

The form and functions of river basin management organizations are changing in most countries of the region, in some cases integrated management of river basins is replacing sector based management for the first time, and in many cases new water laws and regulations are being developed and implemented. Government agencies are devolving activities to new organizations, which include active participation of stakeholders from multiple sectors. In this changing environment the new organizations are developing their own processes to deliver the mandate they have been given, to implement the new water governance structures. In this atmosphere of change it is opportune to introduce the concepts of performance management to encourage these new institutions to adopt continual performance improvement as a core management strategy.

By early 2004, the International Network of River Basin Organizations (INBO) reported that the network included over 150 member river basin organizations, located in over 50 countries (INBO, 2003). Each of these basin organizations implement the principles of integrated water resources management, at the most appropriate level, as proposed by the Dublin Conference (1991) and formally agreed at the Rio Convention (1992). Following these land-mark events and the subsequent World Water Forums in The Hague (1999) and Kyoto (2003) the ideas of integrated water resources management have become widely recognized as a key to sustainable management of a critical resource for the sustained economic and social development of the global community.

The Network of Asian River Basin Organizations (NARBO) was established following the 3rd World Water Forum in Kyoto in 2003 and activated by the adoption of the NARBO Charter in Batu-Malang, Indonesia in February 2004. The network is supporting the expansion of RBO and IWRM principles in the region. NARBO identified an important role of the network as being “Advocacy, Raising Awareness, and Exchange of Information and Good Practices on Integrated Water Resources Management (IWRM)” through the efforts of the Secretariat, member organizations and knowledge partners. The Framework for NARBO Action Plans (2004-2005) identifies Performance Benchmarking as one of the priority activities for the new network (NARBO, 2004). The relatively rapid adoption of River Basin Organizations (RBO) as the key institutional element supporting the adoption and implementation of integrated water management in Asian river basins has created a need for systematic methods for identification of best practices in basin management and service delivery by newly formed and well established organizations alike.

The NARBO supported RBO Performance initiative is designed to provide a flexible framework of performance indicators and a supporting system to enable participating organizations to implement benchmarking and peer review amongst comparable organizations with the objective of achieving high performance organizations responsible for management of river basins. Given the dynamic environment in which water governance is evolving and the rapid expansion in the numbers of basin organizations with expanding roles being adopted, the NARBO performance initiative is based on the concepts of peer group benchmarking and continual improvement processes.

Benchmarking is primarily about change – people and organizations that embark on benchmarking have identified a need to improve one or more aspects of their organization's performance. This is true whether the organization is a manufacturing industry, a service provider or a regulatory authority.

In short benchmarking requires the organization to :

1. Understand the organization's own processes
2. Analyze processes applied by other organizations undertaking similar functions
3. Compare the other organizations' performance with their own
4. Implement steps to close any performance gap in critical performance indicators.

River basin organizations each have characteristics that distinguish them from all others. However there are sufficient similarities in physical basin characteristics and the operational responsibilities of the RBOs to make comparison of performance a useful methodology to identify best practices and to promote sharing of experiences. However in developing guidelines and an operational system for performance benchmarking for use by the members of NARBO it is proposed that the system:

- enables the characterization of the participating organizations to enable the RBOs to select other organizations with similar characteristics and performance aspirations for comparison.
- include a range of indicators that measure the performance of common critical performance factors
- allow participating RBOs to initially use the system to establish internal benchmarks of critical operations; to identify partner/peer organizations to undertake comparative analysis of performance; and to ultimately support peer review.

Approaches to Performance Management

In this section we describe, based on extensive literature reviews, the meaning of organizational performance and organizational performance management. We explore existing frameworks for performance evaluation, identify methods for performance improvement and discuss the role of benchmarking and peer review as tools of organizational performance improvement. We then introduce performance indicators, the essential building blocks of any effective benchmarking and peer review system, and explore on suitable performance indicators for river basin organizations (RBOs).

What is Performance Management?

This section presents the theoretical basis for performance benchmarking of river basin organizations by investigating the meaning and ways of measuring performance of organizations. It should be noted that much of the literature on performance management and benchmarking originally focused on improving the performance of industrial, commercial and service industries. However, we will illustrate that the principles of performance management, developed in mission-led research and other non-profit organizations, are applicable, with some modification, in the context of river basin organizations in Asia and elsewhere.

How can we define and measure performance?

Industrial performance measurement typically focuses on a firm's profitability; utilizing output performance measures such as time-to-market, return-on-investment, market share etc. which are, almost certainly, not appropriate for service-oriented, non-profit RBOs. Performance for non-profit enterprises is better considered in terms of how well the organization is achieving its mission (Drucker, 1992, Jain & Triandis, 1997). However the historical development of performance management in industry holds useful lessons for the non-profit environment.

Performance analysis has developed from a purely financial focus to consideration of the three "Es" in the 1980s:- Economy, Efficiency (usually measured through short term output type indicators such as costs, quantity produced etc.) and Effectiveness (usually focused on the impact of outputs) (Moura e Sa & Kanji, 2003). Efficiency and effectiveness are widely acknowledged as cornerstones of performance evaluation. The definitions vary between sources but there is a common theme that effectiveness is more important for research and development (R&D) performance than efficiency and that delivery of results to users is the vital criteria. These concepts are applicable to RBOs.

Schumann & Ransley (1995) favour effectiveness "*doing the right thing*" over efficiency "*doing the thing right*" for improvements in R&D performance. They note that improved efficiency brings tremendous advantages in reducing manufacturing costs but has little positive long-term impact on R&D. Davis & Carden (1998) analyze research effectiveness and identify the importance of "delivery of usable results to a target group". Szakonyi (1994a) goes further and identifies outputs as a measure of efficiency but not of performance. This is rather extreme but he is stressing that integration of organizational effort towards organizational objectives is key to performance rather than the production of outputs. This view heralded the further broadening of organizational performance appraisal, with the influence of Total Quality Management theories in the 1990s, and a focus on quality and consumer satisfaction (Kouzes, 1999). These elements are particularly appropriate for a non-profit service industry (Drucker, 1992) and led to an increasing awareness of the requirement for organizational development and a consideration for the wider effects of any organization's operations on society and the environment; these are concerns of relevance to RBOs.

Evaluation typologies

It is expected that the performance objectives of RBOs will develop in response to the socio-economic context of the basin and also the maturity of the RBO itself. This section reviews frameworks for measurement of performance in different settings, again drawing on literature from industry, R&D and non-profit, mission led organizations.

Kaplan and Norton (1992) developed the well known Balanced Score Card (BSC) to encourage industry to view its performance from a wider perspective than the narrow financial aspect of bottom-line profit. They promote four areas of performance measurement perspective as shown in Figure 1, namely finance; customers; internal business processes; and learning and growth. They also advise a balance between outcome measures and measures that drive future performance so that not only are outputs tracked but also progress in building organizational capabilities and intangible assets for future growth are monitored.

Although the BSC was developed to encourage profit making businesses to broaden their strategic view it has, more recently, been applied to the non-profit industry (Kaplan, 2001). Kaplan concurs with other authors in the view that success for Non-profit organizations should be measured by how well they deliver their mission, or specifically how "effectively and efficiently

they meet the needs of their constituencies”. In the original formulation of the BSC the “Financial” perspective headed the table of four, however Kaplan suggests that for Non-Profit organizations the “Customer” perspective should be at the top of the hierarchy, the “Financial” perspective relegated to the bottom and an overarching mission statement as shown in Figure 2. Moreover the idea of “customer” is expanded to something more akin to “stakeholder”, reflecting the complex concept of “customers” in the context of a Non-profit enterprise. Kaplan (2001) provides several examples of the BSC in use to support the development of performance in Non-profit organizations and the metrics adopted.

Moura e Sa and Kanji (2003), in their discussion of the path to organizational excellence in local government, say that the BSC “can not be regarded as a measurement model since it does not clearly identify which are the variables involved, how they can be measured and how they relate to each other”. Other comprehensive frameworks do exist, which address organizational performance evaluation in depth. The most relevant are described below for incorporation to the BSC, thus overcoming the issues and elevate the BSC as a performance measurement tool suitable for RBOs.

Schumann & Ransley (1995) identified that a broad range of performance evaluation is required to adequately describe organizational performance and proposed a comprehensive taxonomy of performance assessment in the form of a six by four matrix, Table 1. The matrix indicates that performance can be measured at different stages of operation from six perspectives, defined as People; Process; Outputs; Internal consequences; External consequences and Society, a classification widely accepted throughout Industrial R&D literature (see Drongelen, 2000).

Schumann & Ransley demonstrated that the matrix could be applied with indicators of performance at the organizational, team and project levels. They provide one of the few examples, in the performance literature, that attempts to match evaluation metrics with purpose of measurement. Considering the four purposes (I—IV) in the Schumann and Ransley matrix, these can be mapped to activities and outputs typical of RBOs, Box 1.

Table 1 Evaluation typology for river basin organization performance, after Schumann & Ransley (1995)

	1. People	2. Process	3. Outputs	4. Internal consequences	5. External consequences	6. Society
I. Internal end-of-process measures, for performance tracking	1.I	2.I	3.I	4.I	5.I	6.I
II. Internal in-process measures, for efficiency	1.II.	2.II	3.II	4.II	5.II	6.II
III. External end-of-process measures, for stakeholder/client satisfaction analysis	1.III	2.III	3.III	4.III	5.III	6.III
IV. External in-process measures, for benchmarking	1.IV	2.IV	3.IV	4.IV	5.IV	6.IV

For example, considering the stages of a water abstraction grant application (Box 1) we can define indicators, within the matrix provided by Schumann & Ransley, that would enable an RBO to track the organization’s performance. If we assume the submission of an application by an external body should be prepared according to a specification of the information and format the

RBO requires to process the application efficiently, then we can define indicators that measure internal and external elements of the performance of the task that may enable the organization to improve this process. When the application is received, the RBO will record receipt of the application, possibly indicating to the applicant when a decision will be available. The RBO will pre-process the application to check for completeness and then initiate procedures to consult with stakeholders where relevant, evaluate impacts and bring a recommendation to the decision making body of the RBO.

Within the context of performance measures and referring to the cell identities in Table 1, we can define indicators such as:

- 1.II the number of staff days to pre-process applications (possibly an indicator of the human resource capacity and training of the RBO staff)
- 2.I the percentage of applications rejected due to incompleteness or incorrect completion of forms (a possible indicator of the transparency of the external process established by the RBO)
- 1.III the elapsed time from receipt to notification of acceptance of application (a measure of the process applied to the procedure of dealing with the application)

Box 1 RBO processing of application to grant permit to extract water

The granting of a permit to extract water from a river system will, in broad terms, involve processing and evaluation, leading to a final decision to grant or reject an application, including stages such as:

- a. External entity raising and submitting an application for a permit to extract a specified quantity and quality of water at a specified location for a defined purpose.
- b. RBO receiving and processing the application, including evaluation of application for validity and completeness; notification of stakeholders of the application, review of the impacts and implications of the granting or rejecting the application against some agreed criteria; determination of the result of the application considering any feedback; and notification of the result to the applicant
- c. In case of a rejection of the application, the RBO may have to deal with a resubmission of a changed application or an appeal against the decision which may escalate the process to higher levels of administration or the legal system.

Szakonyi (1994b) developed a quite different approach to benchmarking organizational effectiveness. He postulated that effectiveness pertains to the development of the management system and drew strongly from TQM concepts. He provides the most articulated method of organizational benchmarking; characterizing R&D using ten separate value-creation activities and a six point scale as shown, translated to an RBO setting, in Table 2.

Szakonyi collated data describing the performance of 300 R&D groups and presented an average profile as a benchmark for those wishing to use his system. An organization can then compare their own performance with the average to enable them to make informed choices of the areas where improvement are both possible and strategically important. An organization's choice of existing position on the matrix is supported through comprehensive real life examples of the positioning of the 300 R&D groups' performance. This matrix could provide a model for an RBO benchmarking system, but it would require the definition of a suitable benchmark profile of

performance. In Table 2 Szakonyi's average R&D profile is incorporated as "X" and proposed as a minimum RBO profile for discussion. Szakonyi's benchmarking does not contribute to the development of metrics; and in fact it ignores "output" type metrics completely. Rather it provides a framework for evaluation of the organization's strategic and long-term capabilities, based on the evaluation of the level of development of desirable internal processes.

Table 2 Suggested minimum profile for an effective RBO for discussion purposes (after Szakonyi 1994)

	Issue is not recognized	Initial efforts made towards addressing issue	Right skills are in place	Appropriate methods are used	Responsibilities are clarified	Continuous improvements are underway
Selecting the range of RBO service provision				X		
Planning and Managing projects				X		
Generating new project ideas			X			
Maintaining Quality of internal processes and methods			X			
Motivating technical people		X				
Establishing cross-disciplinary teams		X				
Coordinating services and marketing			X			
Transferring technology to users			X			
Fostering collaboration between services and finance	X					
Linking service provision to business plans		X				

It should be noted that there are many other performance measures and frameworks proposed in the literature. However, the choice of performance method and measure must not be divorced from the purpose of the measurement. The two dimensional framework proposed by Schumann & Ransley is comprehensive and supports development of a balance of metrics. Szakonyi's benchmarking taxonomy complements the Schumann & Ransley framework as Szakonyi measures the development of long-term value-creation activities (broadly aimed at effectiveness) as opposed to short-term output metrics (broadly aimed at efficiency) and the BSC provides a simple framework which is readily understood. A combination of these ideas provides a comprehensive framework for RBO performance measurement to underpin benchmarking.

Moura e Sa and Kanji (2003) confirmed that a broad spectrum of measures should be adopted when establishing effective performance assessment schemes but also cautioned against information overload and advised keeping any measurement system as simple as possible. A preliminary list of areas of evaluation for RBOs was presented during the earlier NARBO performance workshop (Makin, 2004) in which the broader elements of the effects of the decisions and operations of an RBO on the environment, society and internal management and development processes were reviewed. The participants at the October workshop considered RBO operations with respect to six broad areas, below:

- Resources management
- Environmental performance
- Internal RBO management
- Stakeholder Involvement
- Service performance
- International co-operation (between shared basins)

Performance management is most effective when focused on the critical success factors (CSF) of the organization being considered i.e. those operations that contribute the most to the achievement of the organization's objectives (Goodstein et al. 1993). Benchmarking is a tool that enables the organization to track its progress in improving performance against each critical success indicator (CSI) associated with the CSFs. These critical success factors might be related to a process, quality control, marketing, customer care, or service delivery, but from the discussions above it is clearly desirable to have a range of CSI's relevant to different perspectives. Performance of the top level organizations change over time, fortunately benchmarking is a tool that can assist in the process of continuous change to achieve the highest (benchmark) level of performance.

Through stakeholder discussions and an agreement to use the BSC approach to performance management, the participants in Jatiluhur (Makin, 2004) identified fifteen candidate CSFs in the four key BSC areas, namely:

- Stakeholders
- Internal Processes
- Learning and Growth
- Financial

By combining the simple structure of the BSC framework with the important lessons from Szakonyi and Schumann & Ransley provides a novel framework to support effective and focused performance assessment in the complex and evolving working environment of river basin organizations. This framework will support the evaluation of RBO performance from a range of perspectives and with respect to long and short-term performance objectives. We predict this will prove an effective route to performance improvement and therefore a suitable performance typology as the basis for river basin organization benchmarking.

Performance indicators

Performance improvement through benchmarking and peer review relies on the development of appropriate performance indicators which are responsive to the key drivers of performance or critical success factors (CSF). Having identified the organization's CSFs the next step is to decide which indicators are most appropriate to measure these CSFs. For example if a business is committed to "triple bottom line" performance measurement, the indicators chosen must measure economic, environmental and social aspects of the business. The triple bottom line concept has become a pivotal part of the decision making process for many organizations, particularly those whose operations rely on natural resources for their income. In its simplest form, it is about taking into account the environmental, social and economic changes that may result from a decision, and ensuring that these changes are acceptable.

Performance indicators are necessary for benchmarking but they also support individual organizational performance improvement by measuring progress towards defined goals; by identifying and communicating what is important to the organization's success; by helping to create goal congruence among members of the organization; and by driving future resource allocation decisions.

Kouzes et al (1999) and Jain & Triandis (1997) advised that organizations should develop performance indicators based on a broad spread of criteria. This view is widely supported

(Chiesa & Macella, 1996; Werner & Souder, 1997a; Kaplan & Norton, 1996). Werner & Souder (1997b), for example, advise developing a compromise between the short-term and long-term views and advocated tailoring metrics to fit the philosophy, traditions and culture within the organization and the sociopolitical and environmental conditions prevailing in the country.

Indicators chosen to measure performance must be measurable and meaningful, (Alexander, 2004). The main characteristics of good indicators are:

- Accessibility – the criterion must be accessible and easily available at the desired level of accuracy.
- Discriminatory – the indicator must be able to appropriately and fairly discriminate between different levels of performance
- Objectivity – the measures taken on the indicator must be identical no matter who makes the measurements.
- Reliability – the measure must be reliable in the sense they are metrics of the indicator and are unaffected by possible confounding variables
- Validity – the indicator must be a metric of the performance outcome it is supposed to be a measure of.

Kouzmin et al. (1999) provide examples of potential indicators. These include financial performance indicators to identify the cost of delivery and direct cost recovery; and client/customer surveys to evaluate goods and services under the headings of customer expectations, work culture, work design, work force requirements, and hours of operation, costs, remuneration and evaluation. They also analyse competence through indicators of current skill, multi skilling, skills attainment, future needs, empowerment, staff distribution, team-work and commitment.

There are numerous indicators that prove useful to RBOs, for example Folz (2004) suggests concentrating on service quality including delivery, frequency, intensity, coverage, convenience and quality as perceived by the users. He also identifies a logical link between the quality of service and the quality of inputs. The Common Assessment Framework web pages (European Institute of Public Administration, 2004) provide many examples of assessment criteria applicable to public service administration. The International Programme for Technology and Research in Irrigation and Drainage (IPTRID) guidelines (Malano & Burton, 2001) for benchmarking performance in the irrigation and drainage sector provide a definition and detailed specification for performance indicators which provide a good model for output type indicator definition for NARBO. The indicators proposed are collected under the headings of 1. Service delivery performance; 2. Financial performance; 3. Productive efficiency and; 4. Environmental performance. However, IPTRID apply benchmarking as an output focussed analysis aimed at measuring overall efficiency of operation rather than focusing directly on the organization's processes and effectiveness. Examples of the indicators introduced above are provided in Annex III.

With RBOs becoming responsible for a very broad range of activities it is clearly possible to define many potential measures of performance. However a practical limit should be established and a limited set of indicators developed and tested in the first instance. Additional indicators may be developed as the need arises and other indicators may be dropped over time. During an earlier NARBO performance workshop (Makin, 2004) preliminary indicators were proposed as being applicable to RBOs. The workshop started by considering six areas of performance, together with possible indicators, Table 3:

Table 3 Initial indicators proposed for RB Performance Evaluation

<ul style="list-style-type: none"> • Resources management Data collection and management Response to drought and flood with respect to Municipal and Industrial (M&I) water demands; agriculture; environment, non-consumptive users Use of World Water Assessment Program (WWAP) indicators Basin plan and updates 	<ul style="list-style-type: none"> • Stakeholder Involvement Report card analysis Complaints Gender inclusiveness Civil Society involvement
<ul style="list-style-type: none"> • Environmental performance Environmental statistics Ecological statistics Water quality Environmental flow maintenance Change of key indicators 	<ul style="list-style-type: none"> • Service performance Complaints by sector with respect to M&I; agriculture; environment; non-consumptive users.
<ul style="list-style-type: none"> • Internal RBO management Staffing levels and satisfaction Budget Staff training and Continuing Professional Development Use of ICT system Communications strategy QMS and ISO 9000 certification 	<ul style="list-style-type: none"> • International co-operation (between shared basins) Treaty existence and compliance Data exchange and co-operation Millennium development goals Progress towards achieving key water related goals Water and poverty indicators

As a result of discussions at the Jatiluhur workshop (Makin, 2004) the initial set of indicators (Table 3) was refined to reflect the BSC perspectives, developing new preliminary indicators as shown in Table 4.

Table 4 Revised indicator pool, grouped by BSC perspective areas.

<p>Stakeholders</p> <p>Two way communication strategy in place (Indicator=Y/N) Complaints (Indicator=metric to be developed) Customer satisfaction surveys are utilized (Indicator=scale of response)</p>	<p>Learning and Growth</p> <p>HRD and training (Indicator = % staff budget invested) Adoption of new technologies (Indicator = qualitative) Quality management systems developed (Indicator = QMS/ISO accreditation, qualitative) Staff rewards for innovation etc. (Indicator = ???) R&D investment (Indicator = % of budget)</p>
<p>Internal Processes</p> <p>Business plan and updates available (Indicator = Y/N) Spatial and temporal water allocation plans available (Indicator = qualitative assessment) Stakeholder involvement in planning and allocation (Indicator = qualitative assessment) Alignment between routine operations and plans (Indicator = Peer review)</p>	<p>Financial</p> <p>Degree of cost recovery (Indicator = ratio or %) Budget sources (Indicator = % from each source) Staff efficiency (Indicator = Staff:Revenue ratio)</p>

Although the list in Table 4 is presented as a preliminary set of indicators it is not intended to be exhaustive or to be automatically adopted as the indicator pool for RBOs. The development of an effective set of indicators must rely on consultation with the target audience. Figure 3 shows the stakeholder indices, from Table 4, mapped onto the BSC Stakeholder grid from Figure 2. This expanded grid shows that even the indicators proposed so far are not complete in their definition and underlines the need for further consultation.

In addition indicators are not fixed, but should evolve with use. The Australian National Committee on Irrigation and Drainage has supported benchmarking of Irrigation and Drainage service providers, facilitating review and revision of the indicator set over a period of years in response to the users' requirements (Alexander, personal communication). Germeraad (2003) proposes that the needs of performance evaluation change with time as an organization progresses along a hierarchy of performance needs, similar to the hierarchy of individual needs, Oakland (1993). Although his hierarchical levels may be considered unconvincing, the idea of a progression of performance requirements with increased stakeholder maturity is intuitively appealing. An organization may therefore start by tackling efficiency and then gradually refine its performance evaluation as it becomes more sophisticated in its understanding of performance and in pursuit of continued performance development. This view fits the TQM ideal of continuous improvement as the pinnacle of organizational achievement.

Benchmarking and Performance Management

This section examines the role of benchmarking in performance measurement and improvement, demonstrating that it is a viable basis for performance measurement from all the relevant performance area perspectives.

Benchmarking originated in the corporate business sector as a means for companies to gauge, and subsequently improve, their performance relative to key competitors (Bogan and English, 1994; Miller, 1992; Camp, 1989; Wild, 1999). By studying key competitors' outputs, and the processes used to achieve those outputs, many organizations have been able to adopt best management practices and enhance their own performance, short cutting the time consuming and sometimes expensive route of isolated internal process investigation and re-engineering. In some cases organizations have done so well that they have, in turn, become the organization that others use as a benchmark.

There are many reasons why organizations may be interested in benchmarking. The private sector is primarily driven by a desire to improve return on investment or return to shareholders whilst in the public sector the aim is rather to improve the level and cost-effectiveness of service provision.

In principle, the performance of any organization can be benchmarked. Public sector organizations are no exception. Despite the fact that benchmarking in public sector organizations is a more recent practice, it is being used in a variety of UK government departments, including health, power and urban water supply and sanitation. Regulatory agencies increasingly rely on benchmarking to establish pricing policies based on achieving maximum efficiency for services provided by gas, rail, power and water utilities. Benchmarking therefore has the potential to provide positive benefits if applied to RBOs in the pursuit of performance improvement.

Definition of Benchmarking

Benchmarking is a management tool that has been increasingly used both in the private and public sectors over the last three decades, Kouzmin et al (1999). It is now applied to many areas and aspects of business. Benchmarking is defined a number of ways in the literature and by the proponents of the various techniques. However as Alexander (2004) notes, although definitions may vary, the underlying intent of benchmarking is to find and implement best practice for the organization being analysed. A useful definition of benchmarking by Malano & Burton (2001) is:

“A systematic process for securing continual improvement through comparison with relevant and achievable internal or external norms and standards”

The overall aim of benchmarking is, therefore, to improve the performance of an organization as measured against its mission and objectives (Malano, Burton & Makin, 2004).

Approaches to benchmarking are widely referred to according to three headings:

1. Standards benchmarking – measurement of the organization’s performance relative to agreed standards of performance, either in terms of service delivery or quality of output that an effective organization in the particular business or field of operations should be able to achieve
2. Results benchmarking – the comparison of performance of one organization or process against a similar entity in order to judge relative levels of performance, leading to improved efficiency
3. Process benchmarking – applied by organizations that seek to understand differences in the application of similar processes by other organizations in order to be able to identify and to incorporate best practices in their own operations.

Metric benchmarking (1 and 2 above) is defined as “the quantitative measurement of performance in terms of inputs, outputs, outcomes and the relationship between them”. Process benchmarking (3 above) is defined as the “mapping of one’s own process and subsequent comparison of that process with those of other organizations with exemplary performance in a similar process”. An effective benchmarking system for RBOs should incorporate elements of all of these approaches.

Examples of active Benchmarking in the Water Sector

There are several examples of benchmarking services currently active in the water sector. The experience gained by these benchmarking services will provide useful information, enabling a benchmarking service for RBOs to be developed, learning from the successes of others.

In the water utilities sector benchmarking examples include : IBNET (DFID, 2004); WUP (World Bank 2001, 2003a and 2003b); PDAM (PERPAMSI, 2004); and SEAWUN (SEAWUN, 2004).

The World Bank and DFID supported development of IBNET to “build better and more accessible comparison tools for the water sector” (World Bank 1999). They explain that utilities often have limited access to direct competition to drive performance improvements but that peer comparison provides an effective substitute for direct competition. IBNET is set up as an Internet based system through which users can develop their own monitoring capacities and share their knowledge, at least for a core set of indicators, thereby contributing to comparative information. After extensive market research the global IBNET service utilizes core indicators under the following categories: Coverage; Water consumption and production; Unaccounted for water; Metering practices; Pipe Network performance; Cost and Staffing; Quality of service; Billing and

connections; Financial performance; and Capital investment. IBNET encourages users to establish targets and monitor trends internally but states that the benchmarking service is at its most powerful when information is “shared with peers so that inter-utility comparisons can be made”.

WUP (sponsored by the World Bank) has been set up in at least two regions (Africa⁴ and South East Asia⁵) and a similar initiative has been funded by the Asian Development Bank for developing countries in the Pacific. These benchmarking services are aimed at “facilitating the identification of performance gaps, benchmarking against superior performers and the implementation of performance improvements” for water utilities. 38 performance indicators for water and 23 performance indicators for sanitation have been established in the following areas: demand management; operations; revenue and assets.

SEAWUN is a web based benchmarking service which was set up for member water supply companies in South East Asia and is largely based on the IBNET system, but tailored to the specific requirements of the member companies. The indicators include not only delivery and network performance measures but also long term strategic measures such as those pertaining to customers, capital investment and human resources development.

The association of Indonesian Drinking Water Companies (PERPAMSI) has implemented a Benchmarking service called PDAM⁶ which currently serves 80 participating water utilities. The aims are to enable Water companies to evaluate their own performance and make comparisons with other water utilities with similar characteristics in Indonesia. PERPAMSI also advocate the benchmarking service for planning and monitoring purposes. Their 29 indicators are readily accessed in the web pages and are grouped according to the categories: Financial Perspective; Customer Perspective; Technical/Operational Perspective; and Personnel/HRD Perspective.

Another successful benchmarking system is the National Water and Wastewater Benchmarking Initiative in Canada⁷ which has grown from four wastewater utilities in 1997 to 35 municipal and regional water, wastewater and stormwater utilities. This project aims at developing, sharing and implementing municipal best practices. Earth Tech state that “additionally the project serves as a highly effective repository of management information which managers can draw on to provide feedback to stakeholders on utility performance, to identify continuous improvement opportunities, and to induce change from within the organizations. Most importantly the benchmarking group has developed into a highly effective network of peers from which they share and exchange ideas about utility management.”

It appears that benchmarking has proved useful to water utilities. However Benchmarking has only recently been introduced into the irrigation and drainage sector so examples are less numerous. The Australian National Committee of ICID initiated a programme in 1998 (ANCID, 2000) which reported on 46 systems and 47 performance indicators in 1999. The indicators are grouped into the four key management areas of System operation; Environmental management; Business processes and Financial Management.

The World Bank initiated an international benchmarking programme, originally under the auspices of IPTRID, which is now a web based joint venture between the World Bank, IPTRID,

⁴ http://www.worldbank.org/wbi/water/water_africa.html

⁵ <http://www.worldbank.org/wbi/water/sasia.html>

⁶ www.perpamsi.org/benchmarking_eng.htm

⁷ www.nationalbenchmarking.ca

IWMI, ICID and FAO (Malano et al, 2004). This online irrigation benchmarking service (OIBS⁸) includes information for more than 130 systems. The current list of indicators is provided in Annex II.

From these very brief descriptions it can be seen that there are many similarities in the objectives and measures or indicators used in these benchmarking services. A broadly similar approach, particularly with reference to OIBS, will benefit RBOs, if the benchmarking service is specifically tailored to RBO needs and utilizes the theoretical concepts presented in this paper.

Benchmarking has been shown by these examples of active services to be recognized as a system for sharing performance information, a form of self-imposed competition particularly useful for organizations operating within a monopoly; an enabler for self analysis; a system to assist in the development of baseline information; an enabler for process tracking; external sharing of information between similar organizations for mutual benefit; and a tool underpinning many other types of performance evaluation. This holistic view of benchmarking elevates the evaluation method from just one out of a range of performance evaluation approaches, to a supporting tool for all forms of organizational performance assessment. Benchmarking has the potential to provide information in a format suitable not only for self evaluation but also other types of performance appraisal such as peer review. A good example of this in practice is provided by the Common Assessment Framework (CAF) model (European Institute of Public Administration, 2004) which is a tool for “organizational self-assessment in the public sector” of the EU. Performance data are entered into a computer based system by participant organizations, and then an external panel determines the overall organizational performance rating.

Benchmarking is therefore a strong contender as a component of the toolkit for performance evaluation by RBOs. Benchmarking has the potential to underpin other performance initiatives and enables an RBO not only to learn from its own successes and failures but also those of others. Benchmarking can be seen as an empowering tool. Kouzmin et al explain that benchmarking should be a learning activity and changes should occur as a consequence of learning. Benchmarking is therefore a learning tool which can support the development of a “learning organization”, Senge (1990).

Benchmarking achieves the maximum impact if it is used to identify not only which organization is performing well but also how they achieve superior performance so that lessons can be learned by others. As such the approach seems ideal for supporting members of NARBO to maximize the benefits from the collective experience available through the members of the network. Folz (2004) suggests “first ascertaining the existing level of service quality and whether citizens, customers and relevant stakeholders are satisfied with or prefer a qualitatively different level of service”. Then using benchmarking to identify partners exhibiting better performance in the areas customers have identified as deficient, and learning from those partners how to improve performance in those identified areas. In this way benchmarking becomes a support tool for the strategic management process.

Implementation of Benchmarking

Experience shows that the successful application of benchmarking involves a comprehensive and continuous cyclic process, which includes stages of planning; data collection; data analysis;

⁸ Online Irrigation Benchmarking Service located at <http://www.lk.iwmi.org:82/oibs/main.htm>

making recommendations; implementing recommendations; monitoring and review, Figure 4. To be effective, and to achieve positive benefits from benchmarking, the process must be regularly reviewed and updated, remain relevant, and yield performance improvement or, at a minimum, satisfy reporting requirements, for the organizations involved (Alexander, 2000). In order to establish a benchmarking system for NARBO member RBOs we propose adopting a staged development of benchmarking, following Malano et al (2004) and as expanded in Figure 4.

Figure 4 identifies six stages in the benchmarking process which may be divided into two parts – Part I Investigation and Part II Operation.

Part I Investigation

This part involves planning; collecting data and information; and analyzing the data to find opportunities for improvement. So far this paper and the previous workshop (Jatiluhur, 2004) discussions have addressed items 1-3 of the Planning stage in Figure 4. Item 4 addresses identification of the peer group discussed below.

Identifying a Peer group

Benchmarking implies comparison – either against similar organizations, or organizations performing similar functions or processes; the peer group. Many organizations choose to benchmark internally at the initial stages to track their performance with a view to improving performance over time. However the maximum benefit of benchmarking will normally be obtained by the identification of organizations with similar characteristics where useful parallels can be drawn and experiences shared. To enable identification of appropriate RBOs for comparison (generally referred to as the organization's peer group) a systematic methodology to classify the basin organization and the river basin itself is required.

As a starting point the Jatiluhur workshop (Makin, 2004) participants identified a set of key RBO characteristics as:

- Organizational objectives
- Ownership (Government, Semi-government, Private)
- Scope of Management (needs explaining???)
- Revenue (Service related, Grant/subsidy)
- Internal organization (staff, qualifications)
- Basin area
- Complexity of administrative boundary
- Degree of river regulation

For RBOs it may be particularly useful to consider those with similar stakeholder expectations, probably represented by the Organizational Objectives. However, we may also expect that the objectives of most RBOs will be broadly similar and therefore the additional characteristics introduced above will serve to enable a more focused selection of a homogeneous peer group. A well selected set of peer organizations will enable the whole group to benefit through shared learning processes.

To support both Part I and Part II of a benchmarking service for RBOs a web based communication platform for participating members will be required. Annex II provides a functional specification for an appropriate platform.

The Analysis and Findings stage, stage three, will be initiated as the database is populated, including the implementation of inter-RBO peer review missions in order to confirm the identification of CSFs and the quality of information provided to populate the database. A detailed model for peer review as developed and implemented by OECD (2003) is presented in Annex 1.

Part II Operation

This part, incorporating stages four to six of Figure 4, involves making recommendations for changes to operational procedures, implementing those recommendations and monitoring and reviewing the impacts. These three stages lift the benchmarking process from a simple analysis of performance to a key component of operational management. It is in these stages that the individual RBOs capitalize on the new knowledge, gained from comparison with peer group members, to identify and implement improved operations. In order to do this the organizations must commit resources to ensure the findings are internalized and are implemented. Peer review, by specialists and other members, may be particularly valuable as the organizations consider new approaches. Peer review is an important element of the monitoring and review stage (six) to reinforce the credibility of the process and to provide and objective evaluation of the impacts, Annex I.

The procedures followed in Part II will evolve as the member organizations implement the data collection and analysis stages of Part I, and should be discussed and agreed with the participating members of NARBO in order to fulfill the “Four Cs” of Convergence, Commitment, Co-operation and Credibility described in Annex I.

Commitment to Share Best Practices.

It is relatively simple to define a systematic methodology for classification of RBO and to develop indicators of key performance measures. However for a benchmarking initiative to be successful there must be agreement amongst the partner organizations regarding the provision of benchmarking data and how this data may be shared and used by other members of the initiative.

A key objective of NARBO is to promote best practices and to encourage sharing of lessons learned by the members during the establishment and implementation of IWRM in river basins in Asia. The proposed guidelines and web enabled data sharing platform will provide a common methodology for analysis of performance leading to identification of best practices adopted by RBOs in the region. Peer review would legitimise the performance results and support continued improvements.

A commitment by NARBO members to provide RBO Classification information and performance data will be a key step in establishing a viable benchmarking system for RBO in Asia, and ultimately more widely.

Conclusion

Improved water resources management is expected to contribute to sustainable improvements in rural and urban livelihoods resulting from better delivery of water related services whilst maintaining environmental services from wetlands and other eco-systems. Enhanced water services in the domestic, industrial and agricultural sectors and better sanitation will have impacts on human health, education and nutrition leading to increased incomes and improved national

economies. These impacts will be particularly important to the poor; women and children who generally are more disadvantaged by poor quality, or absence of, services.

Water users in all sectors will benefit from improved performance of national, basin and service level providers; however the rural and urban poor may be expected to benefit to a greater extent as they are more likely to lack access to these services under the current levels of service provision.

River basin organizations have emerged as the key institutional change in water sector governance in recent years. These new organizations are leading to increased involvement of stakeholders and driving increased accountability of service providers across the public and private sector organizations involved in water resources management and water service delivery. As in many fields of business and service provision, both public and private sector, the recognition that increased accountability to the organizations stakeholder community is prompting the adoption of the principles of continuous performance improvement and total quality management, most often appearing as some form of benchmarking program. We have illustrated how the concepts of benchmarking, originally developed by the commercial and corporate sector with a view to increasing operational efficiency to drive increased profitability have developed to support performance improvement in non-profit organizations such as public sector service organizations; mission led research groups; charities and NGOs. We have shown how the concepts of benchmarking might be applied in the context of river basin organizations in order to help develop service oriented institutions, employing best-practice solutions to common problem and supporting the development of innovative solutions to less common situations.

In this paper we have discussed theoretical and practical aspects of performance management in the non-profit sector. Within this we have implicitly acknowledged a hierarchy of performance management requirements from simply counting organizational outputs to benchmarking. An organization may therefore start by tackling efficiency and then gradually refine its performance evaluation as it becomes more sophisticated in its understanding of performance and in pursuit of continued performance development. Benchmarking can support organizational performance improvement at all levels in the hierarchy.

For benchmarking to work it must be pushed through by motivated individuals with support from the wider environment. This wider environment includes an enabling socio-political environment, and support from key stakeholders. The support or drivers for change in this sector are coming from a number of areas, such as increasing pressure on available water resources due to population growth. Whilst changes may be required in the water sector in general, it will be down to individual basin management organizations to implement and take ownership of the benchmarking program for their organizations. It will largely be their commitment and performance that will drive the success or otherwise of the process (Malano et al, 2004).

A key issue will be the identification of achievable targets or standards for which to aim for selected processes. These standards can be identified from analysis of other better-performing basins, but great care will need to be taken that comparison is being made between similar entities. The introduction of a peer review element to performance analysis will ensure legitimization of the performance results.

Finally it has to be appreciated that significant energy, time and resources are required to achieve success. These attributes are required to collect process and analyse data, and then to implement change through gaining the support of all stakeholders involved in the process. Gaining support for change from stakeholders can be a laborious and time-consuming task. Benchmarking is not a

“golden bullet” that automatically leads to improvements in the performance of organizations; however the methodologies of benchmarking have been shown to provide a substantive framework to support management improvements and peer review.

References

- Alexander, P. (2000) Benchmarking of Australian Irrigation Water Providers, Melbourne.
- Alexander, P, M.O. Potter. (2004) Benchmarking of Australian Irrigation Water Provider Businesses. *Journal of Irrigation and Drainage* Vol 53.2
- ANCID (2000) 1998/1999 Australian Irrigation Water Provider – Benchmarking Report, Victoria, Australia; 68
- Berquist M, Ljungberg J & Lundh-Snis U (2001) Practicing peer review in organizations: a qualifier for knowledge dissemination and legitimization, *Journal of Information Technology* Vol 16, pgs 99-112
- Bogan, C.E. and English, M.J. (1994) *Benchmarking for best practices*. McGraw Hill, Maidenhead, UK.
- Camp, R.C. (1989). *Benchmarking*. American Society for Quality Control, Quality Press, Milwaukee, Wisconsin, USA.
- Chiesa, V. & Masella, C (1996) Searching for an effective measure of R&D performance. *Management Decisions*, 1996, Vol34 Issue 7
- Davis C & Carden F (1998) Research Effectiveness and R & D Evaluation in Developing Countries, *Knowledge & Policy*, Vol 10 Issue 4 p7
- Drongelen I, & Bilderbeek J (1999) R&D performance measurement: more than choosing a set of metrics. *R&D Management* Vol 29 (1999), Blackwells, Oxford
- Drongelen I, Nixon B, Pearson A (2000) Performance measurement in industrial R&D, *International Journal of Management*, June 2000, vol2
- Drucker P. (1992) *Managing the Non-profit Organization*, Harper Business, New York
- Folz D. H. (2004) Service Quality and Benchmarking the Performance of Municipal Services. *Public Administration Review*, March/April 2004, Vol 64 No.2
- European Institute of Public Administration, (2004) CAF web pages, <http://www.eipa.nl/home/eipa.htm?http://www.eipa.nl/CAF/Introduction.htm&2>, accessed 8th November 2004.
- Goodstein, L, T Nolan & J. W Pfeiffer. (1993) *Applied Strategic Planning: How to develop a Plan that Really Works*. McGraw Hill, Inc. 379 pages. 1993.

Hoyle D. (2001) ISO 9000 Quality Systems Handbook, Fourth Edition, Butterworth Heinemann, Oxford UK.

IBNET (DFID, 2004), http://www.ib-net.org/wb/bench_network.asp, accessed 7th November 2004.

IBNET (DFID, 2004), http://www.ib-net.org/asp/indicators_about.asp, accessed 7th November 2004.

INBO, 2003. The network newsletter. Number 12. December 2003 - January 2004.

Jain R. & Triandis H. (1997) Management of Research and Development Organizations. Wiley Interscience Publications

Kaplan R.S. (2001) Strategic Performance Measurement and Management in Nonprofit Organizations. *Nonprofit Management and Leadership*, 11 (3) Spring 2001.

Kaplan R. S. & Norton D. P. (1992) The balanced Scorecard: Measures that drive performance, *Harvard Business Review* (January-February): 71-79

Kouzes A, Elke Loffler, Helmut Klages, Nada Korac-Kakabadse, (1999). Benchmarking and performance measurement in public sectors, towards learning for agency effectiveness. *The International Journal of Public Sector Management*. Vol 12.2 1999 pgs 121-144

Makin, I. W. (2004) Report on NARBO Benchmarking Workshop, Jisa Tirta II, Jatiluhur, Indonesia, 12th October, 2004, IWMI

Malano Hector & Martin Burton. (2001). Guidelines for benchmarking performance in the irrigation and drainage sector. IPTRID-FAO. Rome. 44 pages.

Malano Hector, Martin Burton, Ian W Makin, (2004). Benchmarking Performance in the Irrigation and Drainage Sector: A Tool for Change. *Journal of Irrigation and Drainage* Vol 53.2

Miller, J.A. (1992). Measuring progress through benchmarking. *CMA Magazine*, Vol.66, No.4.

Moura E Sa P & Gopal K (2003) Finding the path to Organizational Excellence in Portuguese local government: a performance measurement approach. *Total Quality Management*, Vol14, No 4 2003 491-505

NARBO, (2004). Draft workplan – NARBO web site [www.....](http://www.narbo.org) Accessed October 2004.

OECD (2003) Peer Review: A tool for co-operation and change, Development Co-operation Report, OECD, 2003

Oakland, J.S. (1993) Total Quality Management. The route to improving performance. Butterworth-Heinemann, Oxford.

OIBS (IWMI, 2004), <http://www.lk.iwmi.org:82/oibs/Main.htm>

PDAM (Perpamsi, 2004), http://www.perpamsi.org/benchmarking_eng.htm, accessed 7th November 2004.

Schumann P., Ransley D., (1995) Measuring R&D performance, Research Technology Management, May/Jun, vol38 Issue 3

SEAWUN (SEAWUN, 2004), http://www.seawun.org/bpg/publications_list.asp?vjob=vsub,251, accessed 7th November 2004.

Senge P. (1990) Building Learning Organizations, Sloan Management review, fall, 1990

Szakonyi R (1994a) Measuring R&D effectiveness – I Research Technology Management, March/April 1994, Vol37 Issue 2

Szakonyi R (1994B) Measuring R&D effectiveness – II Research Technology Management, May/Jun 1994 Vol137 Issue 3

Valensuela, D. (2003) What is water governance. INBO. The network newsletter. Number 12. December 2003 - January 2004. pg 10.

Wild, Ray. (1999). Production and operations management. Fifth Edition. Cassell, London.

World Bank (1999) Benchmarking Water & Sanitation Utilities: A Start-Up Kit, World Bank, Washington, USA.

WUP, (World Bank, 2001). Report of Performance Indicators: African Water Supply and Sanitation Utilities 2001 Final Report. Water Utilities Partnership, Abidjan, Cote d'Ivoire.

WUP (World Bank, 2003a), http://www.worldbank.org/wbi/water/water_africa.html, accessed 7th November 2004.

WUP (World Bank, 2003b), <http://www.worldbank.org/wbi/water/sasia.html>, accessed 7th November 2004.

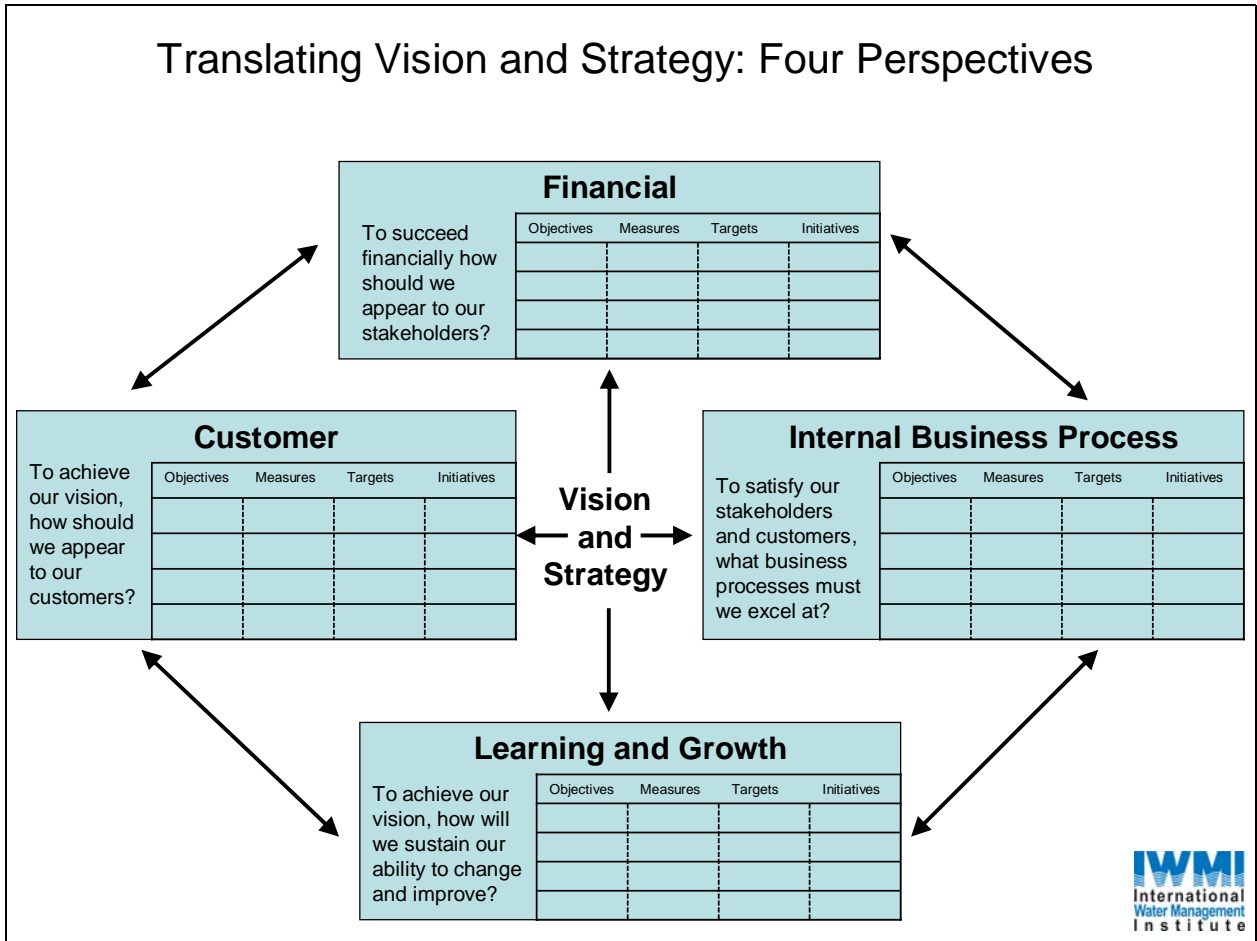


Figure 1 Standard Balanced Score Card (after Kaplan and Norton, 1992)

The Four Perspectives of Performance Management for Non-Profit Organizations

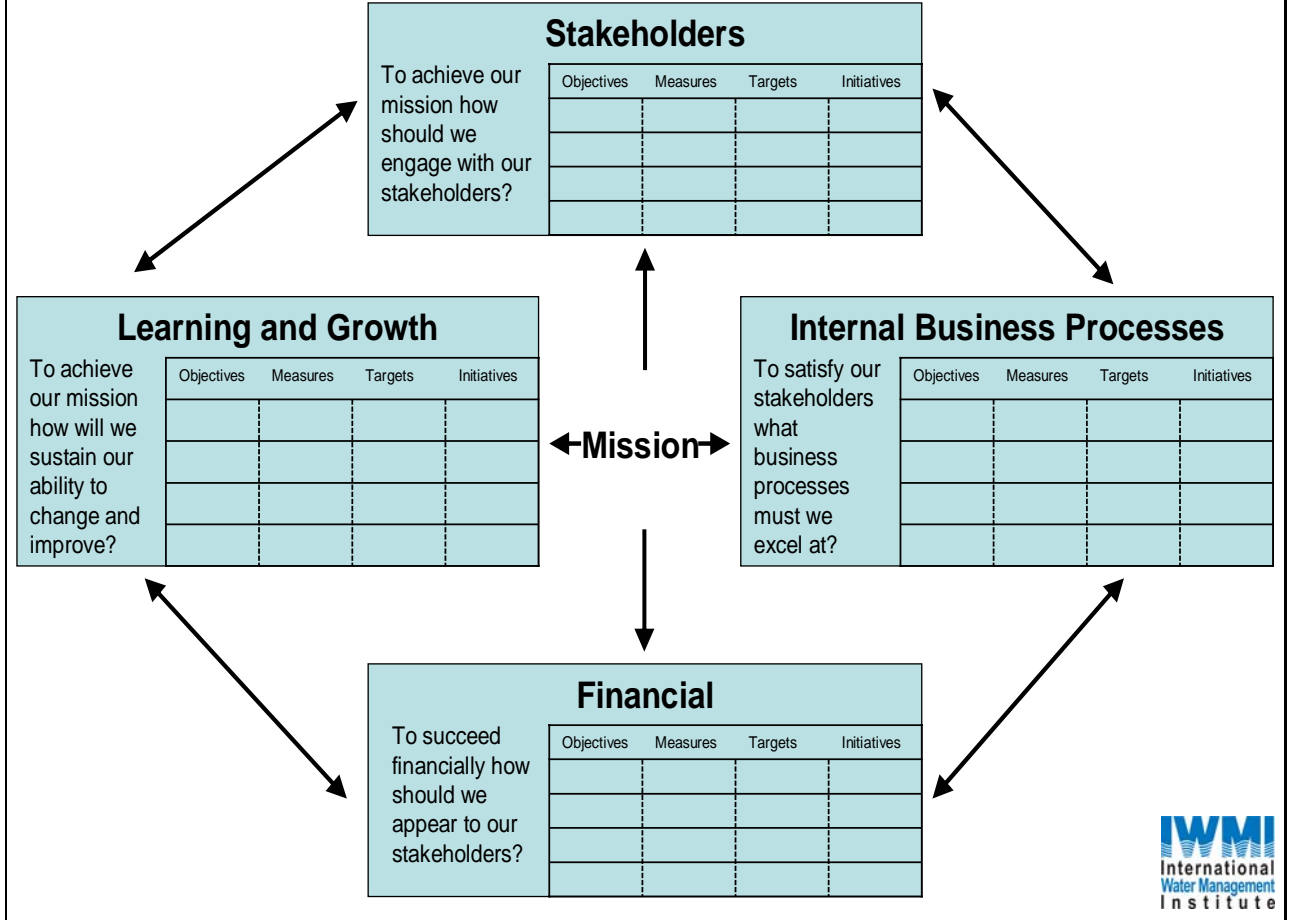


Figure 2 Proposed Balanced Score Card for River Basin Organizations (developed from Kaplan and Norton, 1992).

Stakeholders

To achieve our mission how should we engage with our stakeholders?


Objectives	Measures	Targets	Initiatives
Good two-way communication with stakeholders.	Communication strategy in place (Y/N)	Yes	
Minimize complaints.	Number of complaints in period	Reduction on last period ?	
Improve customer satisfaction.	Customer satisfaction survey.	Improve rating ?	
			

Figure 3 Example of mapping proposed indicators to Balanced Score Card (Stakeholder perspective)

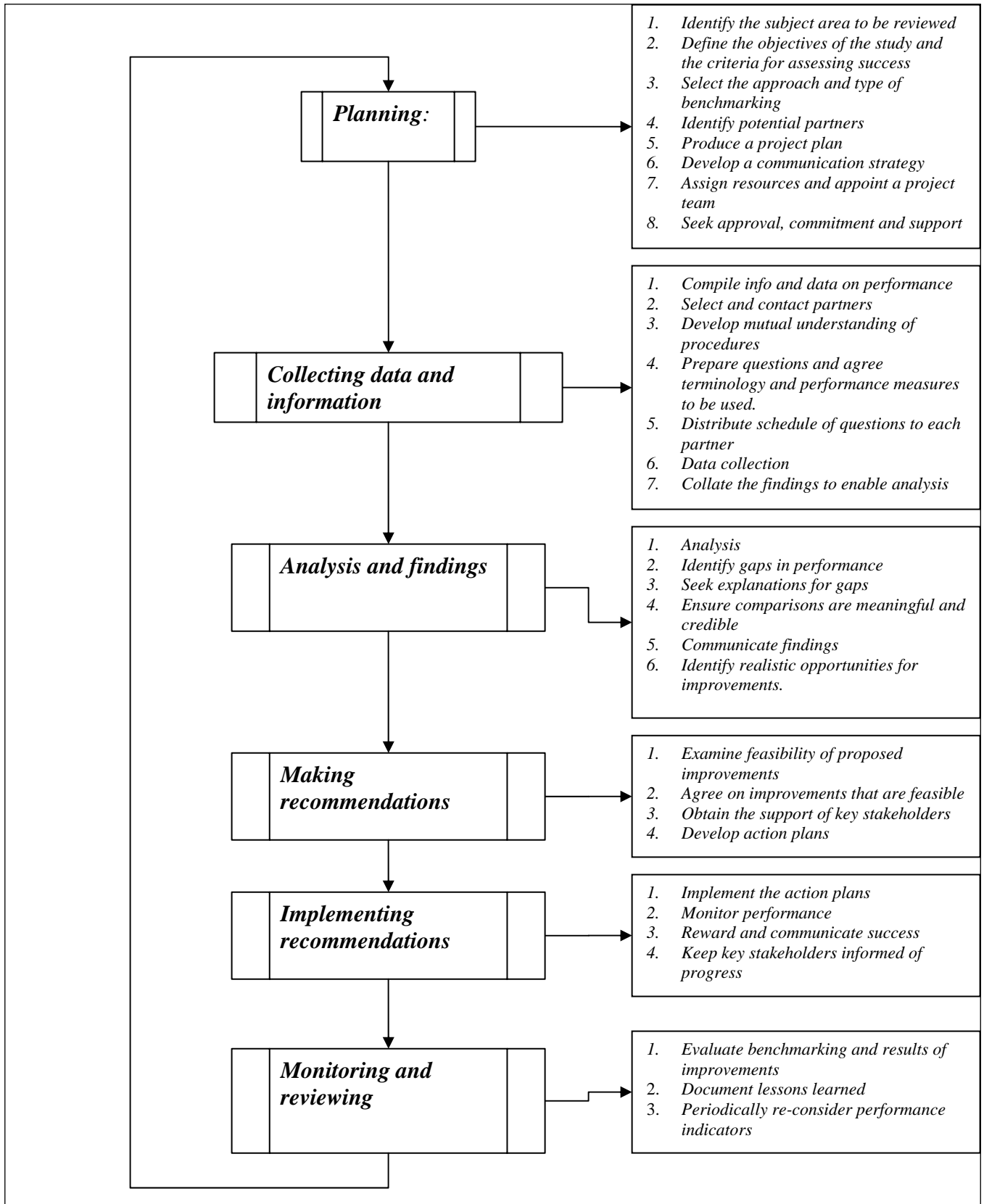


Figure 4 Benchmarking Process flowchart - UK Government

Annex I Peer Review

Benchmarking provides a system for collecting performance information and enabling comparisons between organizations for new knowledge creation and the potential for performance improvement. By sharing practices, within a community with similar interests, different views become aligned and a shared mindset evolves among the participant group which effectively creates new knowledge. However establishing the quality assurance of the new knowledge is important (Berquist et al,2001). Benchmarking is likely to be at its most effective if there is an inbuilt system of mutual accountability. Alexander & Potter (2004), when describing irrigation benchmarking in Australia, identify that “data accuracy is paramount to the benchmarking process”. It is important that users understand the accuracy of the information they are using so that they know the degree of confidence they can place on conclusions drawn from the information. Peer review can provide this accountability by utilising peer recognition to achieve positive results as described by the Organization for Economic Co-operation and Development (OECD, 2003). Peer reviewed benchmarking therefore supports dialogue, transparency, capacity building and legitimization⁹ of new knowledge.

OECD identifies groups promoting and utilizing peer review including the United Nations, The World Trade Organization and the European Union. The aim of OECD peer review process is to promote open dialogue between participants in a non-adversarial setting. Peer recognition or peer-pressure as the driving force for compliance among the participants.

Effective peer reviews require the four Cs of convergence, commitment, co-operation and credibility:

1. **Convergence** – agreement among the participants on the standards and criteria against which to evaluate performance
2. **Commitment** – of both human and financial resources on the part of the participating organizations.
3. **Co-operation** – establishing mutual trust to enable disclosure of data, information and documentation between the participating organizations.
4. **Credibility** – avoiding undermining confidence in the process and findings due to such factors as bias stemming from partisan interests; inadequately defined standards or criteria; or attempts by individual organizations to unduly influence the outcomes.

With the four Cs in place, peer review creates a catalyst for performance enhancement which can be far reaching and open ended.

The OECD peer review model provides a tested process which could be used directly by NARBO. The peer review relies on four groups of actors, namely the domain, the target, the team and the secretariat:

1. The domain within which the review is undertaken is in this case NARBO and predominantly the RBO members.
2. The target RBO co-operates by making information available, responds to questions and requests for self-assessment, facilitates contact and hosting on-site visits.
3. The peer review team carries out the review and represents the peer group

⁹ Legitimization is the process of quality assurance of the information that underlies the benchmarking process, thus ensuring all members of the peer group have access to accurate and reliable information and that each member of the peer group can have confidence this is the case.

4. The secretariat supports and stimulates the peer review process and acts as a keeper of historic memory of peer reviews

A peer review usually proceeds in three phases; the preparatory phase, the consultation phase and the assessment phase:

- The preparatory phase is carried out by the target RBO and may be in response to a questionnaire from the Secretariat. It should include background analysis and some form of self-evaluation by the RBO. The questionnaire may serve as an agenda for the consultation phase.
- The consultation phase is carried out by the review team which maintains a close contact with the target RBO. It may include on-site visits and meetings with other stakeholders. This phase ends with an open discussion and the presentation of a draft report. The draft report is likely to follow a standardised model comprising of an analysis of performance measures and recommendations for future actions.
- The assessment phase encompasses a broad discussion of the draft report with contributions from the reviewed RBO. The conclusion should be a final report which is adopted by consensus. The final report, and particularly the report recommendations, forms the basis for follow up monitoring of the RBO in future peer reviews.

Peer review is an important element of the monitoring and review process within an effective Benchmarking service. Referring to Figure 4 Peer review will support the continuous improvement of the service and is particularly pertinent to the following stages and items:

- Analysis and findings – Ensure comparisons are meaningful and credible
- Implementing recommendations – Monitoring Performance
- Monitoring and Reviewing – All items.

Peer review therefore supports convergence of understanding of indicators among the peer group, credibility of results and brings a higher degree of objectivity to the benchmarking program.

In the process of benchmarking RBO performance we can envisage various forms of peer review that can lead to greater confidence amongst the participants and help the organizations capitalize on the efforts to improve organizational performance and service delivery. In broad terms peer review may be expected to develop as from an internal quality control process to become an external review implemented by a small team of experienced assessors drawn from other participating organizations. The external review teams may include a specialist facilitator with experience in peer review procedures in order to maximize the productivity of the review mission whilst on site.

Annex II Developing a benchmarking service

The Network of Asian River Basin Organizations (NARBO) is proposing the development and implementation of benchmarking approaches to support the evolution of high performing river basin organizations (RBO) through peer review. This new initiative is introduced at workshops in Indonesia during October and November 2004 with the objective of establishing a pilot program during 2005.

If the NARBO members agree the proposed benchmarking framework is appropriate then the proposal will be finalized and a prototype of the benchmarking system prepared for the November workshop for discussion by the participants.

The prototype, web based benchmarking system will, if approved by the NARBO members in response to the November workshop, be fully developed and implemented. A training and launch workshop will be scheduled during 2005 for NARBO members to initiate use of the tools and techniques. Further-more the training workshop will be an opportunity for members to identify similar peer group organizations with which to benchmark their operations and to initiate a peer review process for the future.

Functional Specification for the River Basin Organization Benchmarking Website Prototype

1. Purpose

This annex gives broad descriptions of the functions to be provided by a proposed NARBO Benchmarking website, intended to support performance improvement initiatives by NARBO member RBOs. The Functional Specification:

- Clearly and precisely defines what the website will do, in non-technical, user-oriented language
- Describes the navigational structure of the site
- Describes, screen-by-screen, the content and functions of the website
- Instructs the developer as to the functional requirements of the website

2. Project Definition

2.1. Background

The initial work plan for the newly formed Network of Asian River Basin Organizations (NARBO) identified the development of systematic methods to support the development of effective stakeholder driven river basin organizations as one of NARBO's priority activities. The Asian Development Bank (ADB) and the International Water Management Institute (IWMI) agreed to lead the investigation and development of appropriate supporting tools in collaboration with members of NARBO.

The outline specification for RBO Performance Benchmarking was developed in a draft discussion paper (Makin, Parks, Arriens, 2004a) presented at the Jahitiluhur workshop (Makin, 2004) on October 12th 2004. The specifications for the benchmarking system were

revised in a subsequent draft of the paper (Makin et al, 2004b) to be presented at a consultation workshop of the NARBO members on November 29,30th November, 2004.

This version (0.5) of the Functional Specification for the RBO_Benchmarking web-site forms the basis for the development of a prototype web site to demonstrate the concepts to the NARBO members participating at the November 29/30th Workshop sessions. As such the documentation is not fully developed.

2.2. Current State Analysis

This FS is for the development of a Prototype website for demonstration purposes only. The specification is developed by Ian W Makin, based on a review of similar web sites (IB-NET, OIBS etc).

2.3. Objectives

The objectives of the prototype web site to demonstrate the concepts to the NARBO members participating at the November 29/30th Workshop sessions. The prototype will demonstrate the use of a web platform for sharing information amongst NARBO members, the use of a web-enabled database for capturing performance data, basic analysis of information provided and the identification of peer group for benchmarking and information sharing.

The prototype will enable active discussion of the concepts of web-based performance management amongst NARBO members and form the basis for development of a full-specification for the live RBO_Bench Web site to be deployed by June 2005.

2.4. Users

2.4.1. Definition of Users

A user is a person who would use the website for information and decision-making purposes. To be able to design the website with a user focus it is imperative to identify those users.

2.4.2. Proposed List of Users

The users of the prototype RBO_Bench will be participants at the November workshop in Batu-Malang. It is not intended for the site to go live for access by the NARBO members or the general.

The ultimate user set for the live RBO_Bench web site will include:

1. NARBO RBO members participating in the performance improvement initiative (PII)
2. NARBO knowledge partners, supporting the performance initiative
3. RBO stakeholders
4. General public

The form and degree of access to the information content of the site will be controlled according to the type of user access. NARBO members and RBO participating in the PII will have password controlled access to protect the confidentiality of user information.

2.4.3. Number of Users

The potential users of the Prototype system are less than 50. The final user community may expand to include many hundreds of participating organizations (with login access), whilst the general users are unlimited.

2.5. Scenarios of Use

2.5.1. Scenario 1 – User registration

A new user to the system may register a new user account and password – the level of access to the site will be determined by the System Administrator once the user is identified and participation in the PII confirmed.

A user from the general public may also register to receive information from the PII, although they will not have access to confidential information provided by the PII participants.

2.5.2. Scenario 2 – Creation of RBO information set

A registered PII participant will enter the site through secure login, to gain access to data entry and edit pages, providing access to the web-enabled database and performance analysis engines.

2.5.3. Scenario 3 – General NARBO PII information search

A member of the public (or non-participating NARBO member) may enter the site (with or without login control) to search for information on the relative performance of member RBOs. The individual RBOs will not be identified in the results set, although the organizations included in the result set will be listed.

2.5.4. Scenario 4 – PII Participant seeking peer group

A key objective of the RBO_Bench web site is to provide a platform for communication amongst the PII participating RBO members to enable them members to identify and exchange information with comparable organizations in order to improve performance by the adoption of best practices.

A user will enter the site through the secure login and then use the Characterization parameters to select the peer group of Basin Organizations that most closely match those criteria. The list of organizations and key performance information will be presented to the user, who can then determine which members of the peer group to contact. An email will be generated, with BCC to the selected list of partners and the original to the PPI administrators, requesting agreement to share information.

2.6. Scope

2.6.1. Statement of Scope

The Web-site will include:

- Home page information
- Secure login
- Web enabled data entry and basic analysis

Tabular and graphical report generation
Peer group definition and contact management
Multi-lingual interface
SQL_Server database
Performance reference material

The prototype web site will not include all these features due to time and resource constraints.

Annex III Examples of Performance Indicators

Examples of Indices from OIBS:

Malano et al (2004), in their description of the OIBS benchmarking service, provide a list of output type indices, together with the standard units required for these indicators to ensure comparability. The indicators are:

1. Service delivery performance
 - 1.1 Total annual volume of irrigation water delivery (m^3yr^{-1})
 - 1.2 Annual irrigation water delivery per unit irrigated area (m^3ha^{-1})
 - 1.3 Main system water delivery efficiency.
 - 1.4 Annual relative water supply.
 - 1.5 Annual relative irrigation supply.
 - 1.6 Water delivery capacity.
 - 1.7 Security of entitlement supply.
 - 1.8 Total annual volume of drainage water removal (m^3yr^{-1} , m^3ha^{-1})
 - 1.9 Total annual volume of drainage water treatment for re-use (m^3yr^{-1} , m^3ha^{-1})
2. Financial
 - 2.1 Cost recovery ratio.
 - 2.2 Maintenance cost to revenue ratio.
 - 2.3 Total MOM cost per unit area ($\text{US\$ ha}^{-1}$)
 - 2.4 Total cost per person employed on water delivery ($\text{US\$ person}^{-1}$)
 - 2.5 Revenue collection performance.
 - 2.6 Staffing numbers per unit area (persons ha^{-1})
 - 2.7 Average revenue per cubic metre of irrigation water supplied ($\text{US\$ m}^{-3}$)
3. Productive efficiency
 - 3.1 Total gross annual agricultural production (t)
 - 3.2 Total annual value of agricultural production (US\$)
 - 3.3 Output per unit service area ($\text{US\$ ha}^{-1}$)
 - 3.4 Output per unit irrigated area ($\text{US\$ ha}^{-1}$)
 - 3.5 Output per unit irrigation supply ($\text{US\$ m}^{-3}$)
 - 3.6 Output per unit water consumed ($\text{US\$ m}^{-3}$)
4. Environmental performance
 - 4.1 Water quality: salinity (mmhos cm^{-1})
 - 4.2 Water quality: biological (mg l^{-1})
 - 4.3 Water quality: chemical (mg l^{-1})
 - 4.4 Average depth to groundwater (m)
 - 4.5 Change in water table over time (m)
 - 4.6 Salt balance (t)

Examples of Indices from the Common Assessment Framework:

1. Leadership
 - 1.1 Gives direction to the organization – vision, mission and values communicated.
 - 1.2 Develops and implements a system for managing the organization.
 - 1.3 Motivates and supports the people in the organization and act as a role model, e.g. giving feedback and discussing performance with employees.
 - 1.4 Manages the relations with politicians and other stakeholders e.g. developing marketing.

2. Strategy and planning
 - 2.1 Gathers information relating to present and future needs of stakeholders e.g. identifies all stakeholders.
 - 2.2 Develops reviews and updates strategy and planning e.g. systematic Strengths Weaknesses Opportunities and Threats (SWOT) analysis.
 - 2.3 Implements strategy and planning in the whole organization.
3. Human resources management
 - 3.1 Plans, manages and improves human resources with regard to strategy e.g. provides job descriptions to all staff.
 - 3.2 Identifies, develops and uses competencies of the employees aligning individual team and organizational targets and goals.
 - 3.3 Involves employees by developing dialogue and empowerment e.g. 360degree appraisals.
4. Partnerships and resources
 - 4.1 Develops and implements key partnership relations e.g. exchange staff with partners.
 - 4.2 Develops and implements partnerships with the citizens/customers
 - 4.3 Manages knowledge e.g. measures are in place to ensure the correctness, reliability and security of information.
 - 4.4 Manages finances e.g. ensuring financial and budgetary transparency.
 - 4.5 Manages technology e.g. measures in place to monitor technology progress and implement relevant innovations.
 - 4.6 Manages buildings and assets
5. Process and Change Management
 - 5.1 Identifies, designs, manages and improves processes e.g. by involving customers in the design of improvements to services and products.
 - 5.2 Develops and delivers services and products by involving the citizens/customers e.g. benchmarking to drive improvement.
 - 5.3 Plans and manages modernization and innovation
6. Customer/Citizen oriented results
 - 6.1 Results of customer/citizen satisfaction measurements e.g. overall level of satisfaction with the performance of the organization.
 - 6.2 Indicators of customer/citizen-oriented measures e.g. number of complaints.
7. People results
 - 7.1 Results of employee satisfaction and motivation measurements
 - 7.2 Indicators of employee results (e.g. levels of absenteeism)
8. Society results
 - 8.1 Results of societal performance (e.g. community involvement, media coverage)
9. Key performance results
 - 9.1 The extent to which goals are achieved, effectiveness, efficiency etc.
 - 9.2 Financial performance e.g. extent to which budgets is met.

Each of these areas has a range of indicators. For example the extended list for 9.2 is

- 9.2.1 Extent to which budgets are met
- 9.2.2 Extent to which financial targets are met
- 9.2.3 Evidence of ability to satisfy and balance the financial interests of all stakeholders
- 9.2.4 Measures of effective use of operating funds to avoid exceeding credit limits or under-exploiting resources
- 9.2.5 Extent of income generating activities
- 9.2.6 Frequency and results of financial audits and inspections (internal and external)

9.2.7 Measures of prudent and risk-conscious financial management.

These indices pertain largely to the operating processes of the organization and tend to be long-term strategic indicators. They reflect a similar emphasis to those of Szakonyi (1994a)